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1988 CRB Commodity Year Book

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INTRODUCTION

The *CRB Commodity Year Book 1988* is designed to provide a review of activity in 1987 that affected commodity prices, financial futures, and foreign currencies. The commodities markets had a good year, as they worked out of a long bear market that extended from 1984 to 1986. Prices of many raw materials rebounded sharply, and futures prices rose.

In the futures markets, total trading volume for financial and non-financial futures climbed to a record 228.9 million contracts, up 24 percent from the 1986 level. Interest rate futures were the leaders again, accounting for 43 percent of total volume, followed by agricultural commodities with 19 percent, stock indices--11 percent, energy products--9 percent, foreign currencies--9 percent, and metals--9 percent.

The most heavily traded futures contracts continued to be Treasury bonds, Eurodollars, and the S&P 500 Index. Treasury bonds alone provided over one-fourth of 1987's trading volume. Other active futures contracts were crude oil, gold, soybeans, corn, Deutsche marks, and yen. One area that showed remarkable growth was the petroleum complex; trading volume in crude oil nearly doubled, heating oil volume rose by one-third, and unleaded gas showed almost a five-fold increase in volume.

In 1987, the U.S. economy grew at a real rate of 2.9 percent, the same as the year before, and completed the fifth year of an expansion. Manufacturing had a better year, thanks to an export surge fostered by the soft dollar. Consumer spending and retail sales continued to rise, although they slipped in September and October. The dollar weakened persistently throughout the year, boosting exports. Yet imports also rose, and the trade deficit reached an alarming $171 billion. The federal budget deficit grew, and concerns about it and the trade deficit were factors contributing to October's stock market plunge.

Interest rates climbed from the time of spring's inflation scare through October. The bond market seemed particularly sensitive to inflation during the first nine months of the year. This factor plus the steadily weakening dollar caused the Fed to tighten credit during that period. However, the October stock market crash resulted in the Fed pouring liquidity into the system, and rates declined. By year's end, the rate of inflation, as measured by the CPI, was a moderate 4.4 percent. The CRB Futures Price Index, which comprises 21 non-financial commodities, rose 11 percent during 1987.

The year book includes three feature articles which provide analyses supplementing data and charts in other parts of the book. The first article, "Hedging in Stock Index Futures: Lessons from the Crash," examines the use of index futures to hedge stock portfolios, looks at when these positions are a true hedge, and considers the role of stock index futures in the October market crash.

"The Outlook for U.S. Agricultural and Industrial Commodities Following the Stock Market Plunge" examines the 1987 rebound in commodity prices, and how growth in U.S. exports, due to the weak dollar, boosted prices of many raw materials and commodity futures. It explains that the outlook for prices in 1988 remains constructive because of an export boom affecting manufacturing and agriculture.

The third article, "Using the Commodity Year Book," offers new readers some ideas about how to make use of the statistics and commentary in the book's commodity sections, and how to utilize the *Commodity Year Book Statistical Supplement.*

We wish to express our appreciation for the assistance provided by government agencies, particularly the U.S. Department of Agriculture and Bureau of Mines, and by the commodity exchanges and various trade associations. We have attempted to list these organizations on page 4T.

The Editorial Board
March 1988

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Citrus Associates of N.Y. Cotton Exchange
Coffee, Sugar & Cocoa Exchange
Commodity Exchange, N.Y.
Commodity Futures Trading Commission
Consolidated Gold Fields, PLC
Edison Electric Institute
F.W. Dodge Corp.
Federal Power Commission
Federal Reserve Board
Florida Department of Citrus
Futures Industry Association
Johnson Matthey Ltd.
The Journal of Commerce
General Services Administration
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International Monetary Market (Chicago)
International Tea Committee
Kansas City Board of Trade
MidAmerica Commodity Exchange
Minneapolis Grain Exchange
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New York Cotton Exchange
New York Futures Exchange
New York Mercantile Exchange
Newsprint Service Bureau
Nuclear Exchange Corp.
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Oil World
Portland Cement Association
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* * *

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THE COMMODITY PRICE TREND

The rate of inflation in the U.S. during 1987 accelerated but was still subdued, according to the various indicators available. A spring price surge, stemming mainly from higher energy costs, was followed by weakened inflation pressures during the second half of the year. The Consumer Price Index (CPI) for all urban consumers began the year on a high note and was up 0.7 percent in January. Prices of energy, particularly heating oil, jumped that month, following OPEC's decision to raise prices. But for the remainder of the year, monthly increases in the CPI were comparatively small and were mostly in the 0.2-0.4 percent area. By 1987's end, the year-over-year change in the CPI was 4.4 percent. This compares with 1986's increase of only 1.3 percent.

The Producer Price Index (PPI) for finished goods jumped in March and April, but during the rest of 1987 monthly increases were restrained. An alarming 0.7 percent leap in the index in April was later revised downwards to a more palatable 0.5 percent; the increase was due to rising prices of foodstuffs and industrial commodities. Changes in the PPI in the second half of the year were very small, and by 1987's end, the index had risen 2.1 percent for the year. This compares with a 2.3 percent decline in the PPI during 1986.

CRB Futures Price Index

The CRB Futures Price Index, which reflects values of 21 commodities, gave a stronger performance in 1987 than the previous year. The index began the year at 209.5 and surged upwards in the spring. While the October stock market plunge caused the index to plummet, it later gained on an export-driven grains and oilseeds rally. In late November, the index climbed to 237.1, the best level since mid-1985. However, by December 31 it had slipped somewhat to 232.5.

The government's GNP price deflator was 2.8 percent in the third quarter of 1987, compared with 3.5 percent in the second quarter and 4.2 percent in the first. By the end of third quarter 1987, the year-over-year increase in the deflator was 3.3 percent.

During 1987, major factors that were watched to assess the rate of inflation were the weakening dollar, perceived as inflationary, and the up-and-down trend in oil prices. The U.S. unemployment rate of about 6 percent during much of the year was seen as reflecting full employment and was viewed as potentially inflationary. Capacity utilization rose during the year and by December was 82.2 percent overall; the high rate of 85.1 percent for non-durable goods producers was considered inflationary.

CRB Futures Index Rises in 1987

During its advance in 1987, the CRB Futures Price Index retraced some of its 1984-86 downtrend. The index rose sharply in spring of 1987 and managed to hold most of its gains through the remainder of the year.

Grains and Oilseeds: Concerns over a warm spring in the U.S. and forecasts for a very dry summer sent grains and oilseeds futures surging higher in the spring. During May, subsidized wheat sales to the Soviets under the Export Enhancement Program and a good export pace for corn and soymeal added to price strength in the complex. However, the markets suffered steep losses during the summer, as drought fears proved unwarranted. Prices subsequently rebounded and rallied from August until the October stock market plunge. Gains were fueled by an improving export outlook and by tight pipeline supplies, resulting from light farmer sales of grain and soybeans. Grains ended the year at the best level since early 1986, with substantial tendering by foreign countries for U.S. wheat at subsidized prices. Soybeans and meal were considerably higher, as the USSR purchased sizable amounts of both from the U.S. The buying occurred during a period of low exportable Brazilian supplies.

Industrials: The industrials group gradually worked its way higher during the year, with few setbacks until the stock market drop. Dwindling copper inventories supported prices in late spring, and when supplies proved inadequate to meet a modest growth in demand, futures exploded from June through December, with the nearby contract trading over $1.20/lb. Tight inventories helped lumber prices strengthen over the summer. A seasonal decline in demand sent the market lower in the fall, but prices got late-year support with increases in Canadian stumpage fees. Cotton had an extended rally based on good domestic mill demand and an excellent export pace, until the harvest brought in hedge selling pressure. USDA's large U.S. cotton crop estimate pressured prices downwards, as did the stock market plunge. At year's end, cotton prices were up and down on Soviet crop concerns, fluctuations in equities, and reduced forecasts for economic growth.

Prices in the petroleum complex gained in early 1987, following a late-1986 OPEC decision to raise its bench mark crude price from $15/bbl. to $18. Intensified fighting in the Persian Gulf brought additional gains in the spring and summer, as nervous consumers hoarded inventories. But OPEC's decision in December 1987 to maintain an $18 price for crude and to stick with prevailing production quotas got a bearish market reaction. Prices in the petroleum complex fell back down to their late-1986 levels.

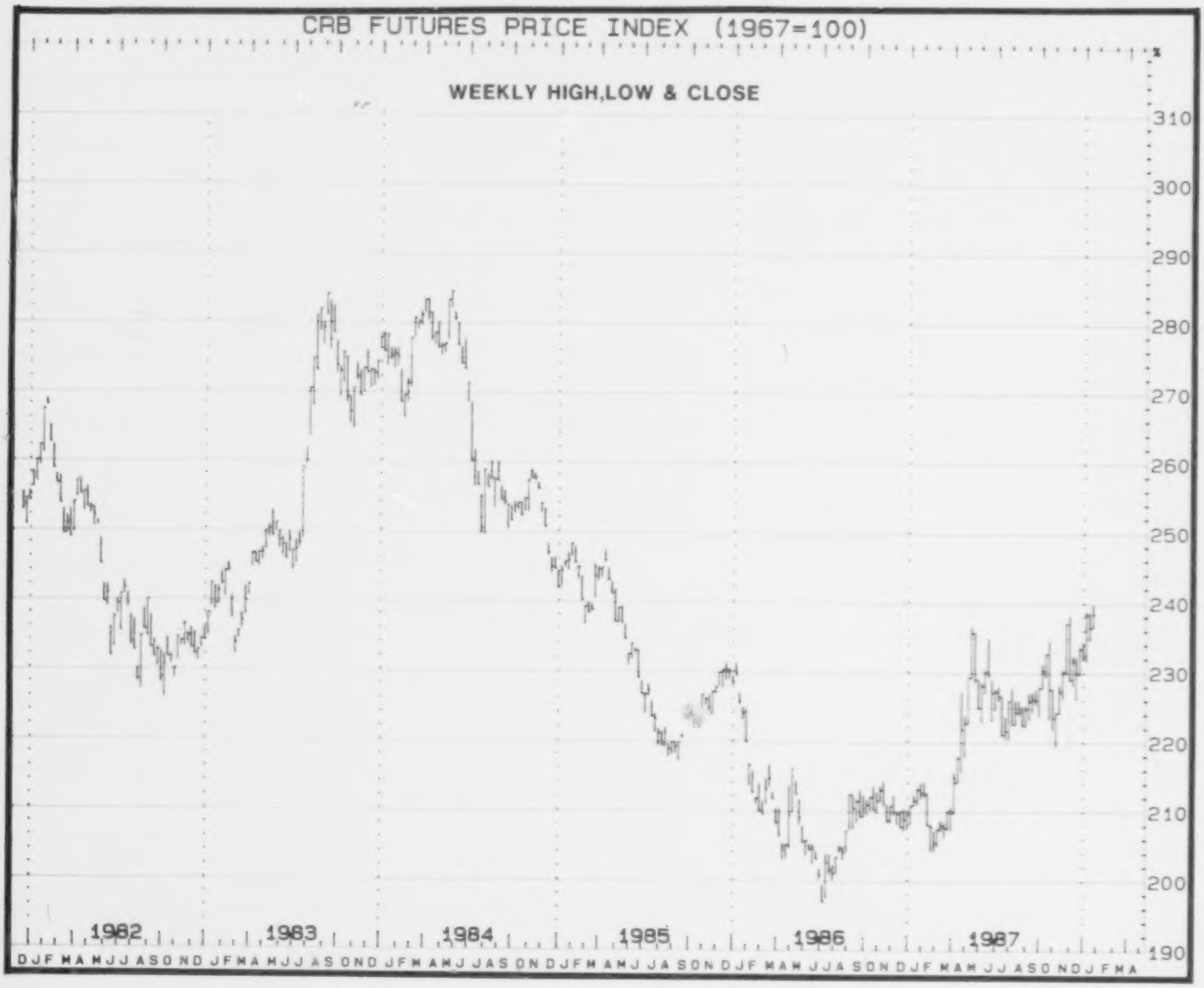
Precious Metals: The precious metals index registered strong gains in spring 1987 and virtually held them until the stock market plunge. Fears of rising inflation, higher oil prices, and weakness in the dollar were factors in the substantial spring rally in gold, silver, and platinum prices. Subsequently, burgeoning trade deficit numbers provided some support for gold. However, after the October stock crash, platinum futures plunged and silver retreated, as forecasts for slower U.S. economic growth suggested reduced industrial demand for these metals. Gold prices were very volatile at year-end, making new highs on continuing dollar softness and falling on deflation concerns, as crude oil prices dropped after December's OPEC meeting.

Imported: The imported group bottomed in July and then advanced, finishing 1987 at slightly above the year-before level. Coffee and cocoa prices began the year pressured by concerns about large surpluses world-wide, while sugar rallied on good physical buying and technical signals. Coffee futures hit their lows in July, as Brazil escaped a winter frost. But hopes for a new International Coffee Agreement enabled prices to recover. In October, the ICO approved coffee export quotas and an objective price range of $1.20/lb. to $1.40, and futures worked higher. The International Cocoa Organization wasn't as successful; its buffer stock manager couldn't buy enough cocoa to support prices in this surplus-plagued market. July drought scares in West Africa and Brazil caused prices to rally, but they collapsed in the fall under the weight of new-crop cocoa. Sugar futures gained from September-December on buying by importers and with projections for a lower world surplus than forecast earlier.

Livestock: The livestock group trended higher during the spring and summer, as prices rose on low cattle and hog kills and good packer demand. In the fall, hog slaughters were higher than the year before and dragged the index lower. The September 30 hogs and pigs report showed market hogs at 109 percent of the year-ago level. And September's cattle on feed report dashed ideas of small winter beef supplies. Fall's steady movement and large kills pressured prices, and the stock market decline (raising fears of reduced meat consumption) exacerbated the downtrend. At year's end, lighter slaughters, due to winter storms, gave livestock prices a boost. However, pork bellies were pressured late in the year by large storage stocks.

Fundamental Outlook: Low inflation Likely in Early 1988

Inflation pressures appear to be fairly mild as we enter 1988. The October stock market crash may have dampened growth in the U.S. economy and have helped put a brake on inflation. At this writing (January 1988), petroleum prices have fallen, following OPEC's inability to address its overproduction problems. Some industry analysts are looking for oil prices to stabilize near term at about $16/bbl., well below last summer's $19-$21. Prices of other industrial commodities may hold the gains achieved in spring of 1987, but sharp advances are not expected in the near future. In foodstuffs, price increases should remain subdued, although we may see some gains longer term as the government draws down its agricultural stocks. And while the rate of employment suggests pressure for higher wages could develop, so far this hasn't happened.



Monthly CRB Futures Price Index (High, Low & Close 1967 = 100)

Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Range
1983	High	242.7	245.1	242.1	247.3	252.7	249.5	261.7	281.6	283.8	275.4	275.6	277.6	283.8
	Low	234.8	232.1	232.8	244.7	247.2	244.2	245.2	263.5	272.5	264.6	265.9	270.4	232.1
	Close	242.7	232.1	242.1	246.7	249.7	246.2	259.9	278.7	273.5	264.6	273.9	277.6	—
1984	High	278.3	276.1	283.0	283.2	284.2	280.3	268.3	259.8	256.3	254.8	258.7	253.2	284.2
	Low	273.2	266.1	274.7	275.1	275.3	268.4	249.4	253.3	250.3	252.0	252.7	244.0	244.0
	Close	273.6	272.5	283.0	275.1	280.1	271.0	249.4	257.1	251.4	254.8	253.8	244.2	—
1985	High	247.9	248.1	245.2	247.1	239.7	233.8	228.0	221.7	224.5	225.6	227.7	231.1	248.1
	Low	241.7	236.6	238.2	239.3	230.9	226.6	219.3	217.7	217.2	221.9	223.8	227.6	217.2
	Close	247.1	238.2	244.4	239.3	232.3	226.6	220.7	219.7	222.9	225.6	227.7	229.2	—
1986	High	231.1	216.6	216.5	213.5	216.1	205.7	203.7	207.1	212.3	213.4	213.3	212.0	231.1
	Low	219.9	209.9	209.4	203.0	205.5	201.6	196.9	201.0	208.2	209.7	208.4	207.5	196.9
	Close	219.9	209.9	209.6	213.5	205.5	201.6	200.1	207.1	210.9	211.3	210.7	209.1	—
1987	High	213.9	213.7	210.1	221.7	235.6	234.6	227.8	226.8	227.3	232.7	237.1	234.7	237.1
	Low	208.3	204.2	205.7	209.4	222.6	223.1	220.7	222.4	223.5	222.7	221.1	227.5	204.2
	Close	212.6	205.4	208.7	221.7	224.9	225.9	225.9	223.0	223.8	223.4	234.6	232.5	—
1988	High	239.3	232.9	233.5										
	Low	230.4	224.3	224.5										
	Close	230.4	225.7	233.0										

Source: Commodity Research Bureau

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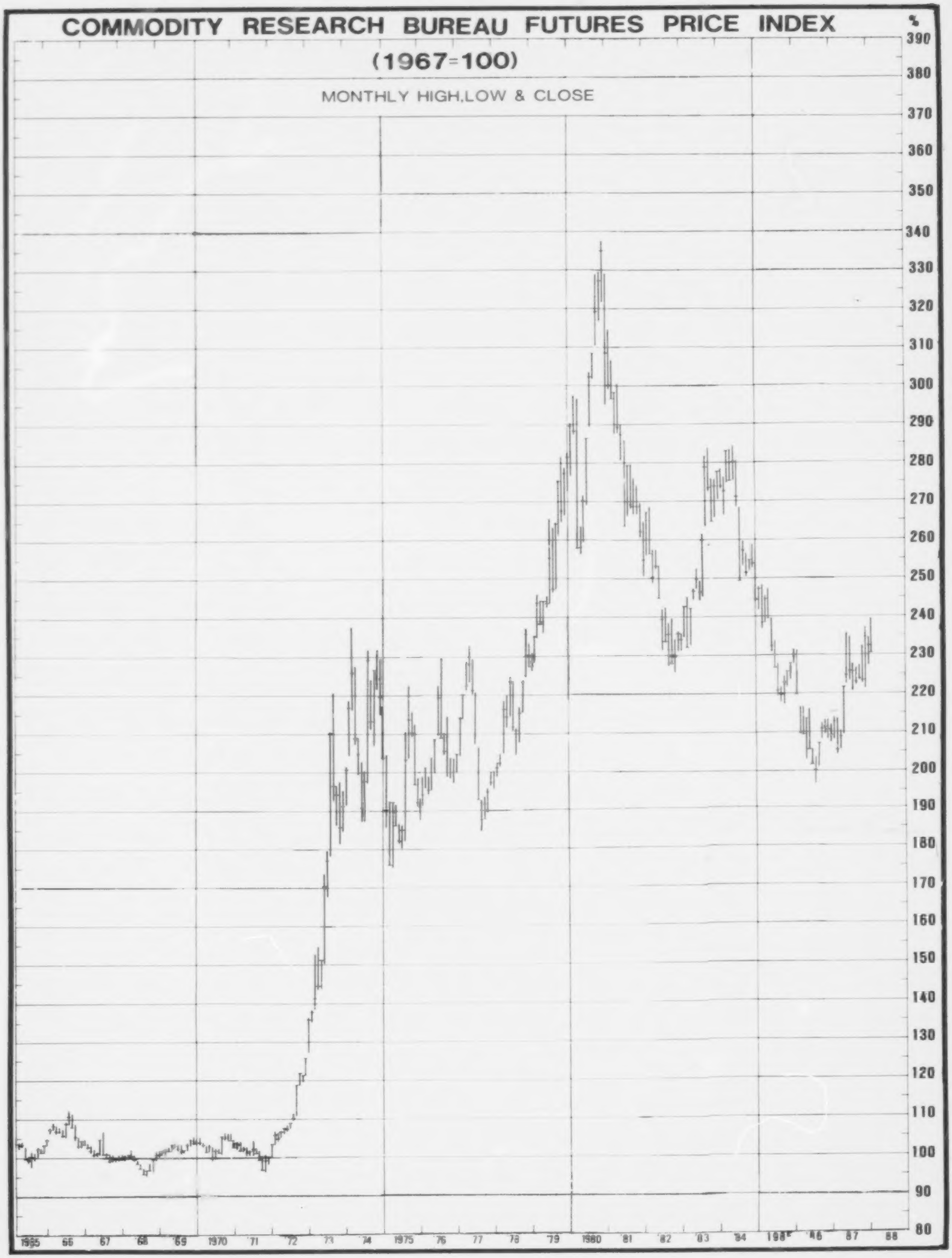
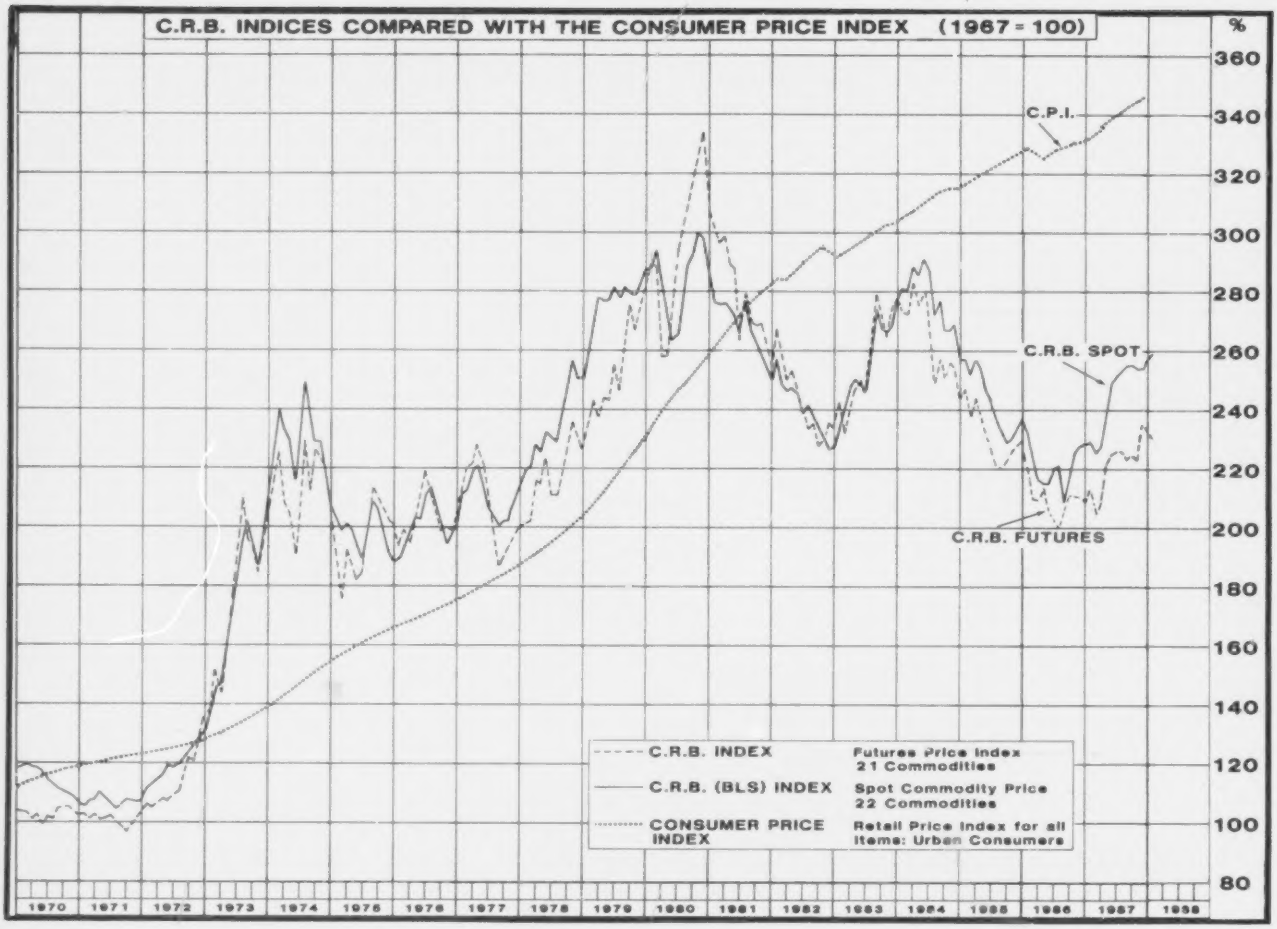
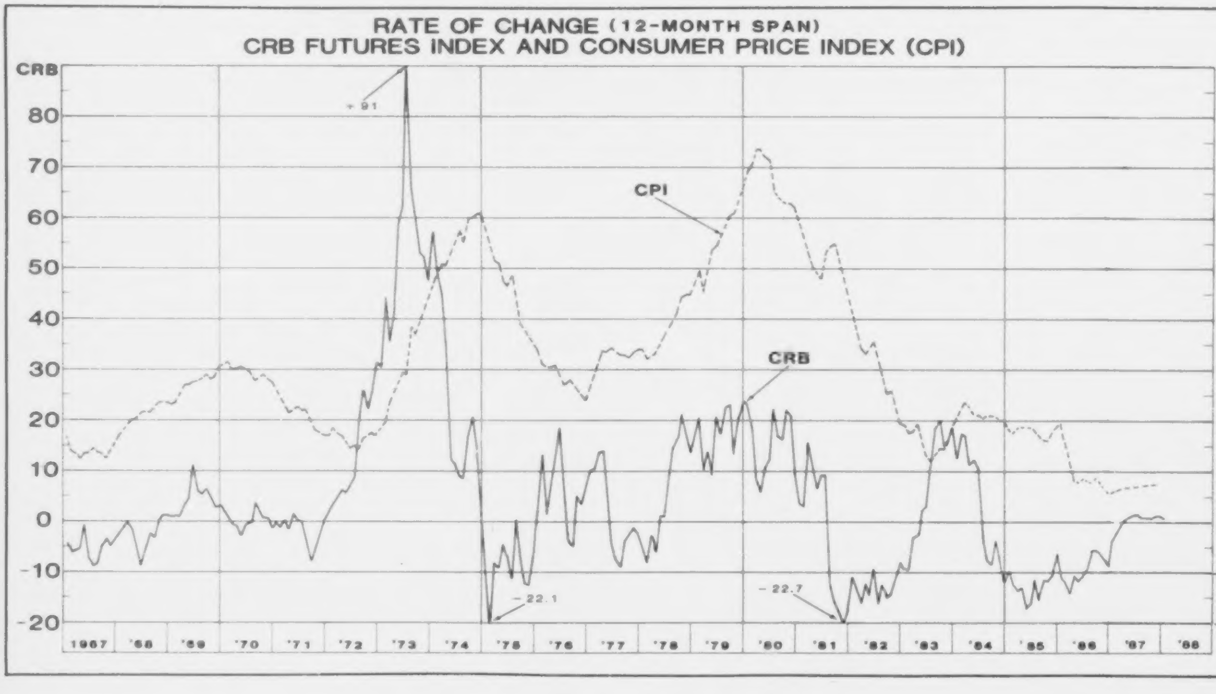


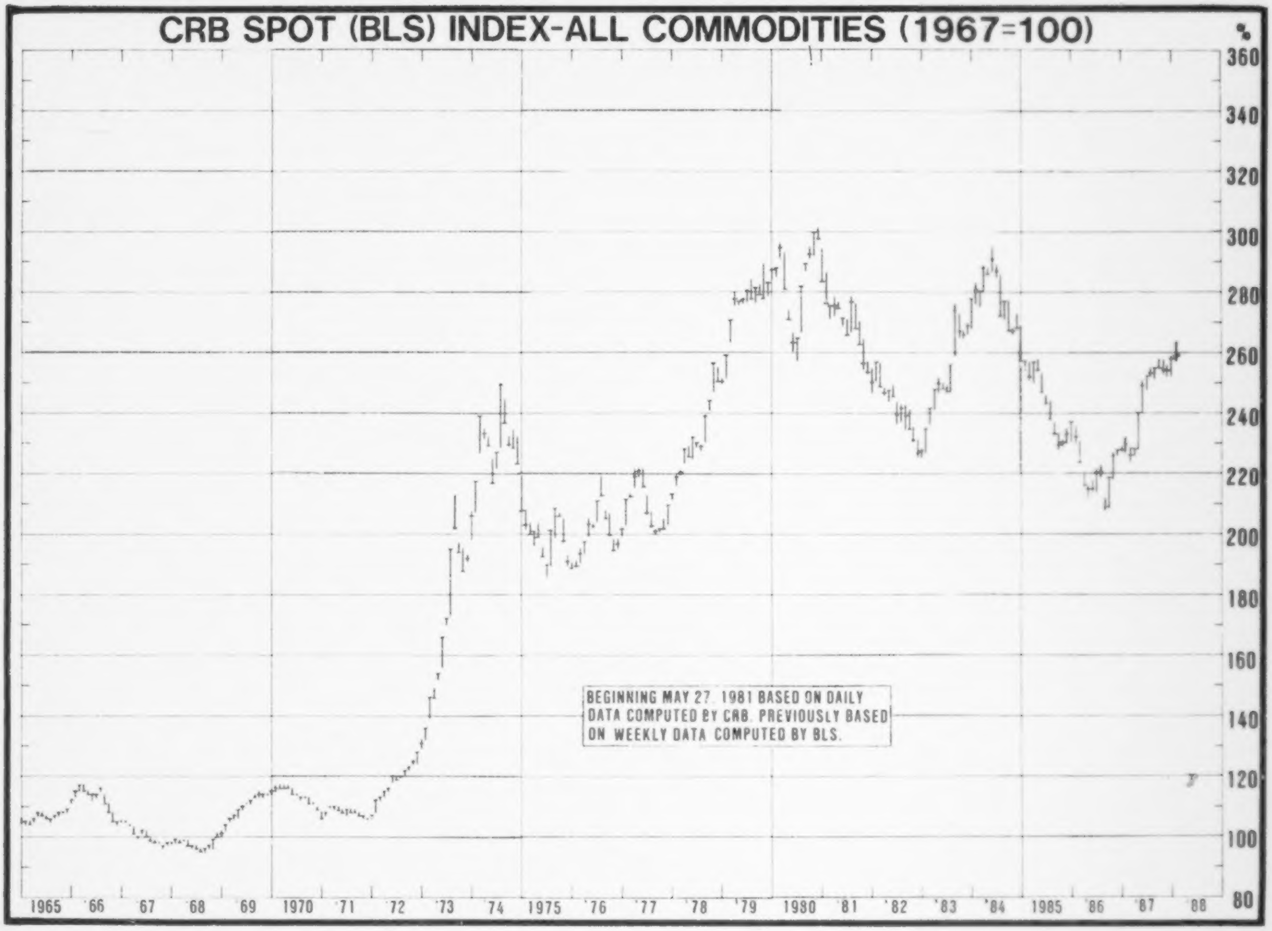
COMMODITY RESEARCH BUREAU FUTURES PRICE INDEX

(1967=100)

MONTHLY HIGH,LOW & CLOSE

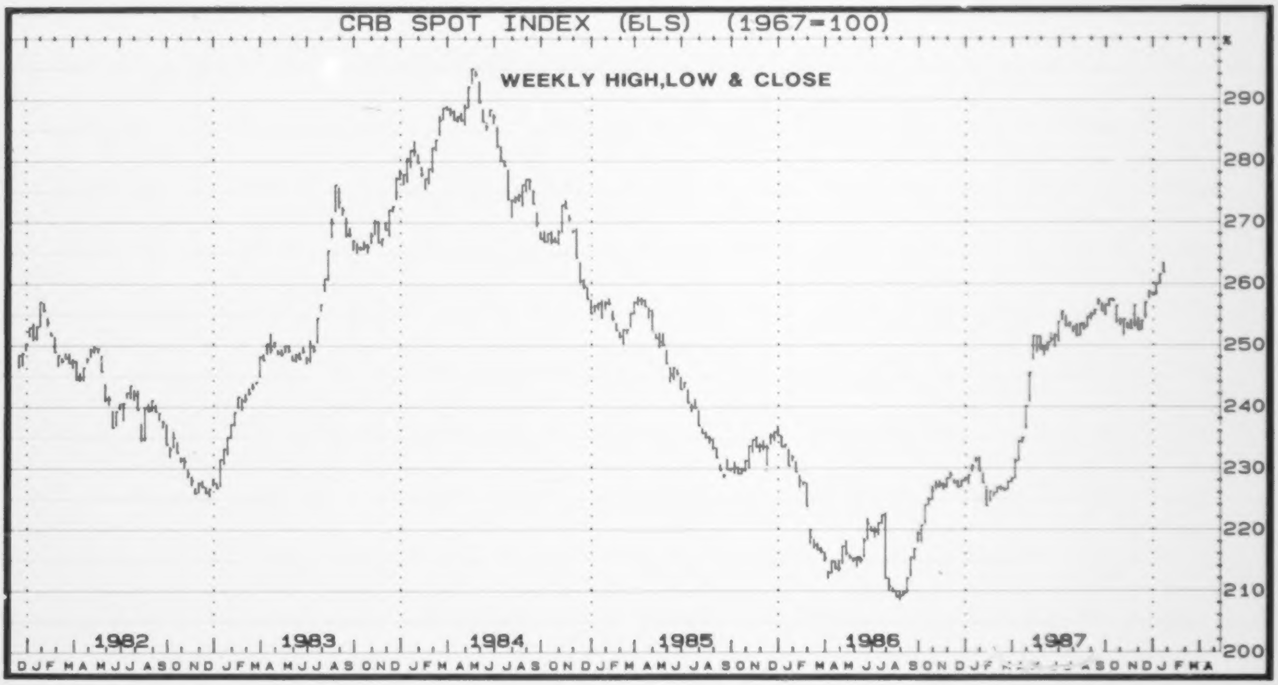

C.R.B. INDICES COMPARED WITH THE CONSUMER PRICE INDEX (1967 = 100)
%
360
340
320
300
280
260
240
220
200
180
160
140
120
100
80
C.P.I.
C.R.B. SPOT
C.R.B. FUTURES
C.R.B. INDEX — Futures Price Index 21 Commodities
C.R.B. (BLS) INDEX — Spot Commodity Price 22 Commodities
CONSUMER PRICE INDEX — Retail Price Index for all Items: Urban Consumers
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988


RATE OF CHANGE (12-MONTH SPAN)
CRB FUTURES INDEX AND CONSUMER PRICE INDEX (CPI)
CRB
CPI %
80
70
60
50
40
30
20
10
0
-10
-20
16
14
12
10
8
6
4
2
0
2
4
+91
CPI
CRB
-22.1
-22.7
1967
'68
'69
'70
'71
'72
'73
'74
'75
'76
'77
'78
'79
'80
'81
'82
'83
'84
'85
'86
'87
'88



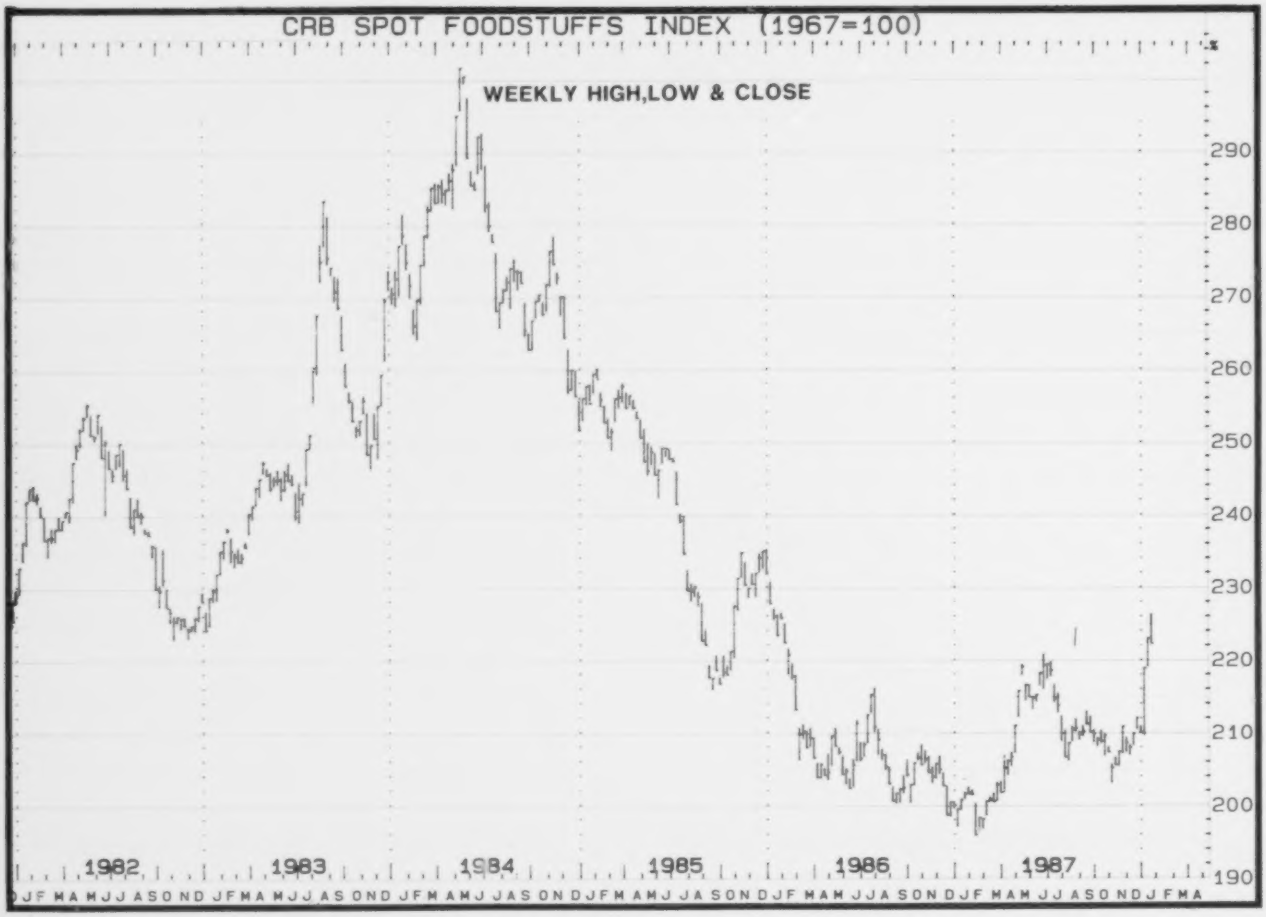
CRB SPOT (BLS) INDEX-ALL COMMODITIES (1967=100)

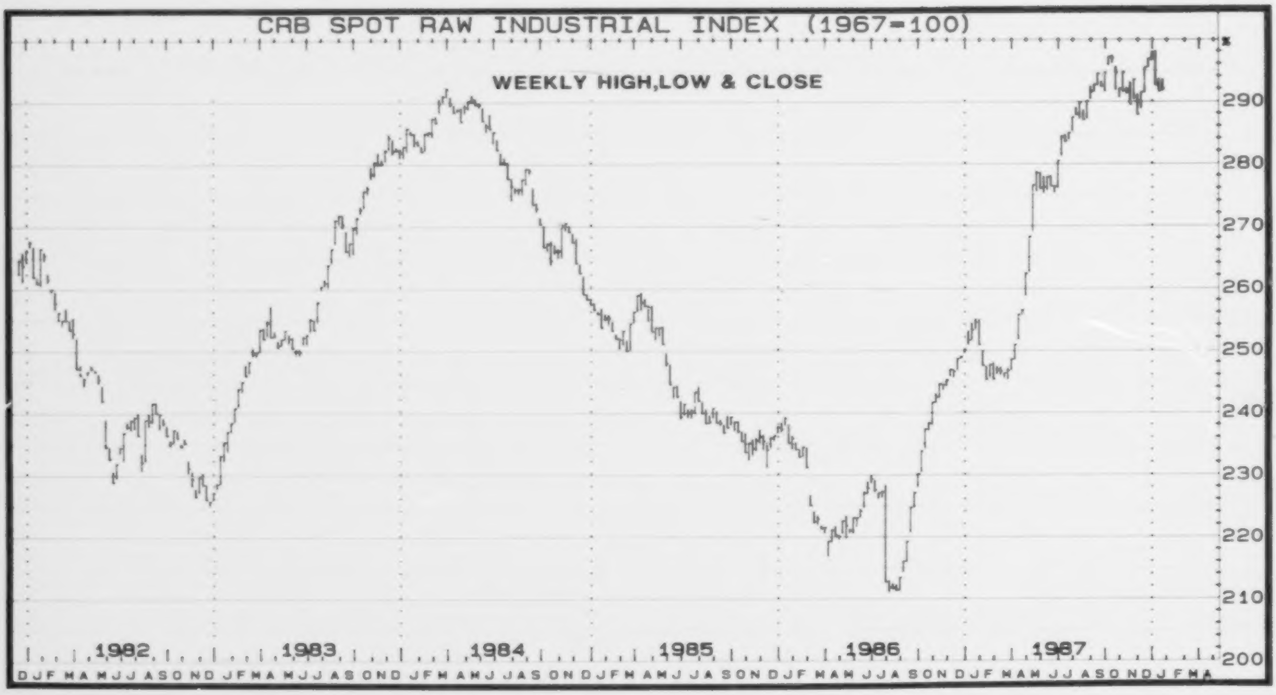
BEGINNING MAY 27, 1981 BASED ON DAILY DATA COMPUTED BY CRB. PREVIOUSLY BASED ON WEEKLY DATA COMPUTED BY BLS.

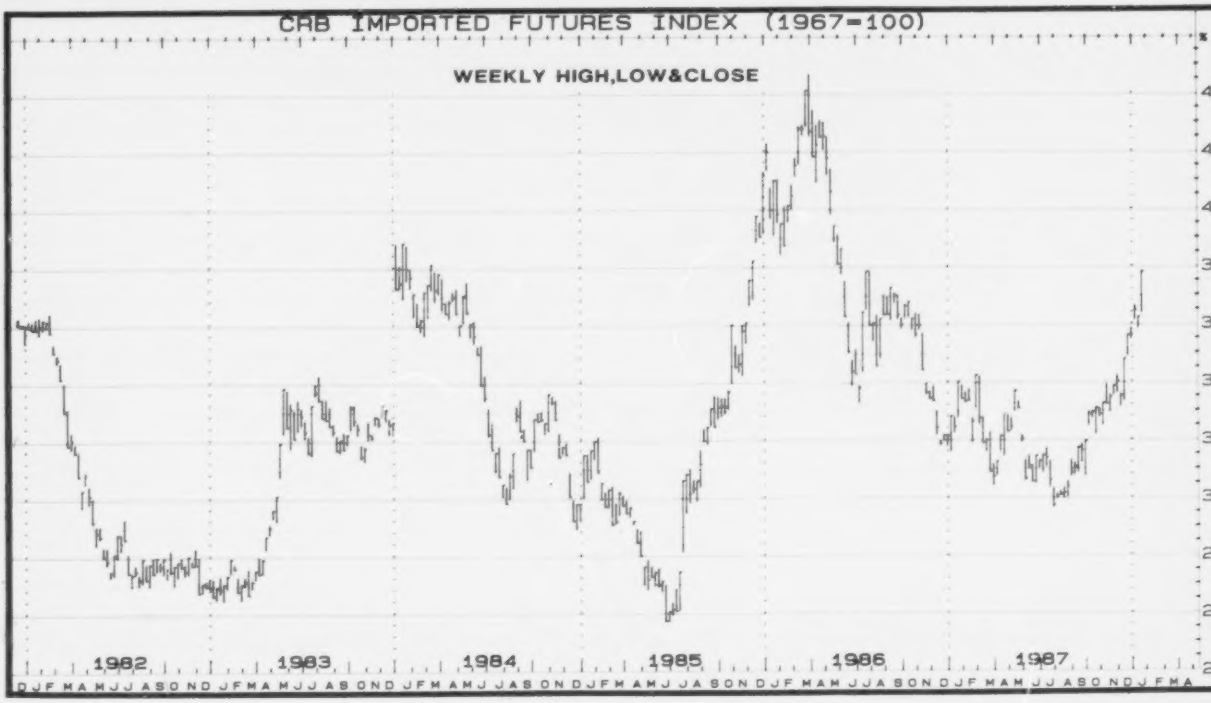


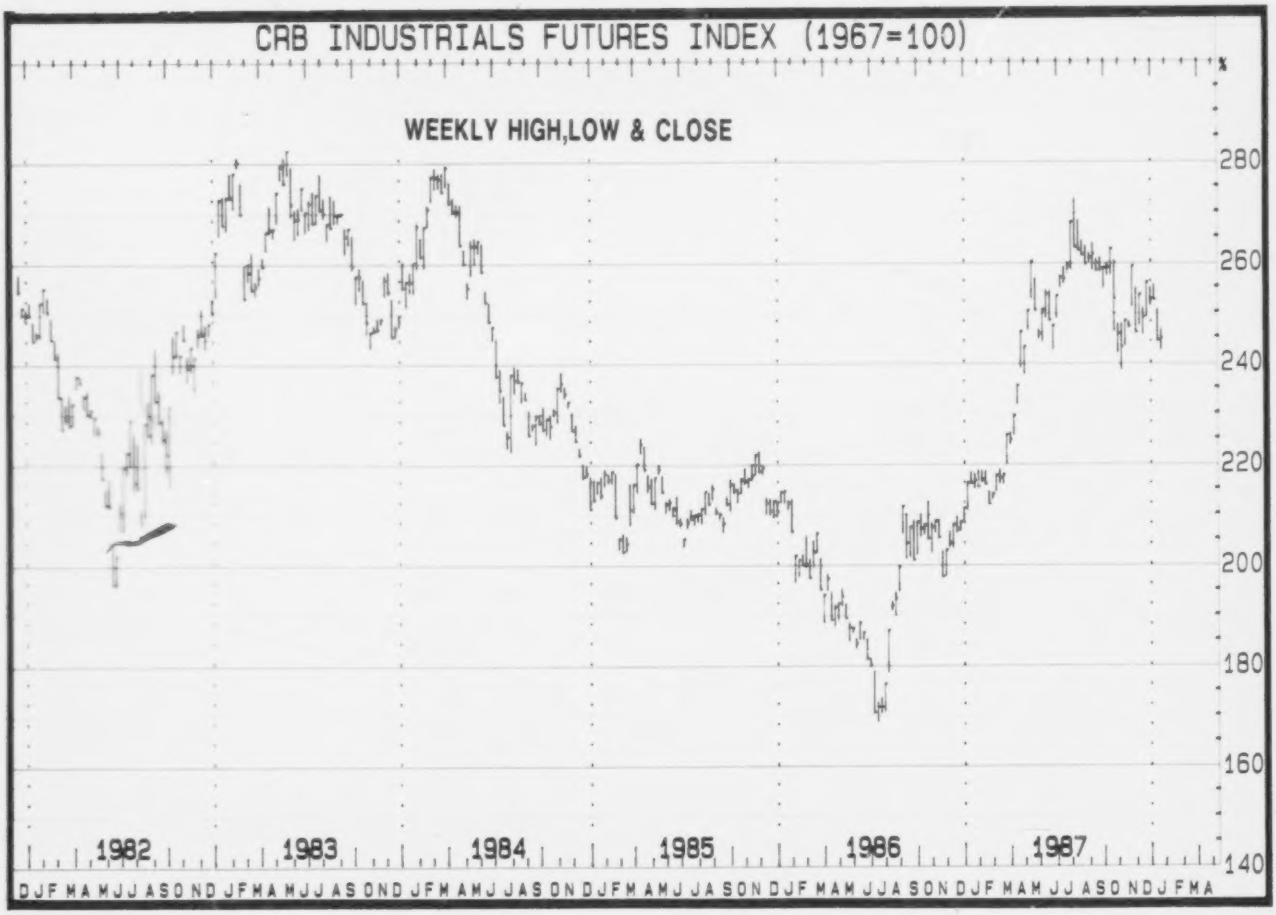
CRB SPOT INDEX (BLS) (1967=100)

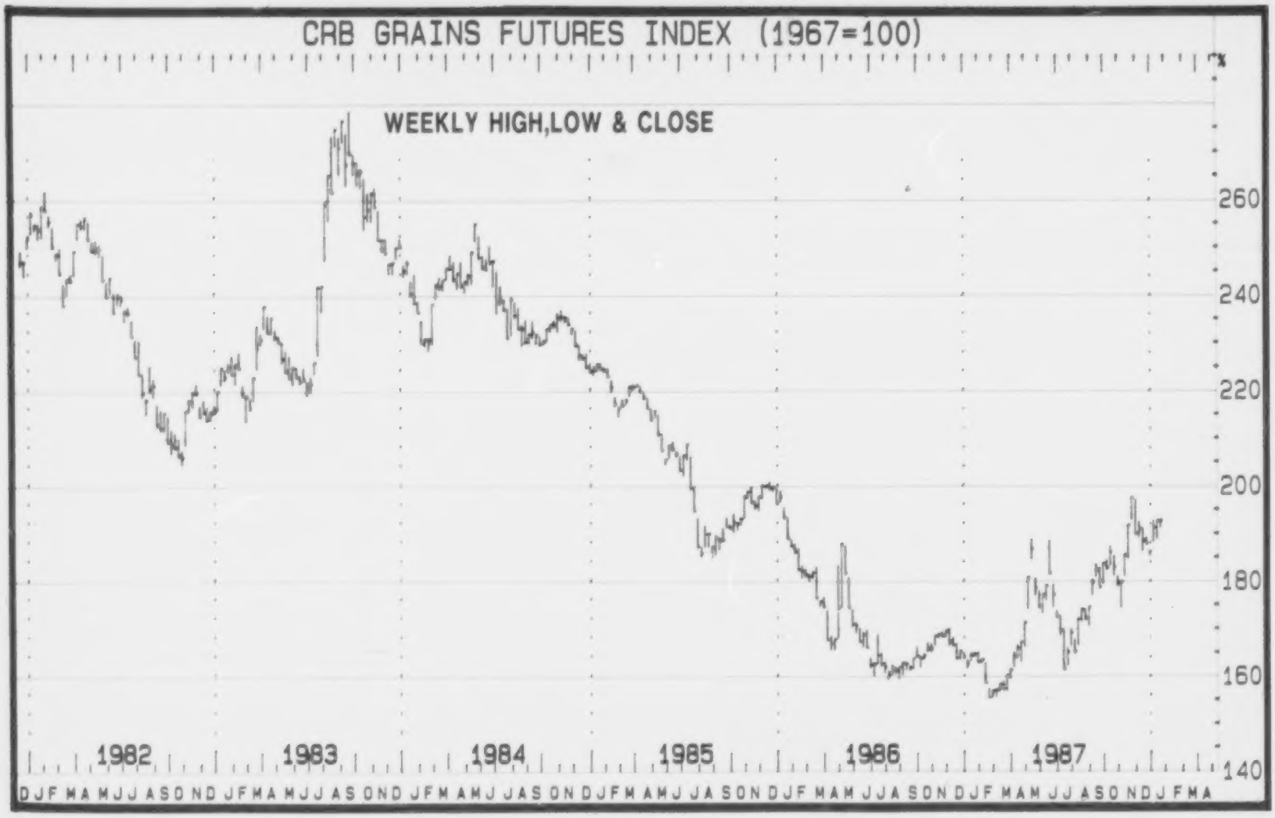
WEEKLY HIGH,LOW & CLOSE


CRB SPOT FOODSTUFFS INDEX (1967=100)
WEEKLY HIGH,LOW & CLOSE
290
280
270
260
250
240
230
220
210
200
190
1982
1983
1984
1985
1986
1987
D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A


CRB SPOT RAW INDUSTRIAL INDEX (1967=100)
WEEKLY HIGH,LOW & CLOSE
290
280
270
260
250
240
230
220
210
200
1982
1983
1984
1985
1986
1987
D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A

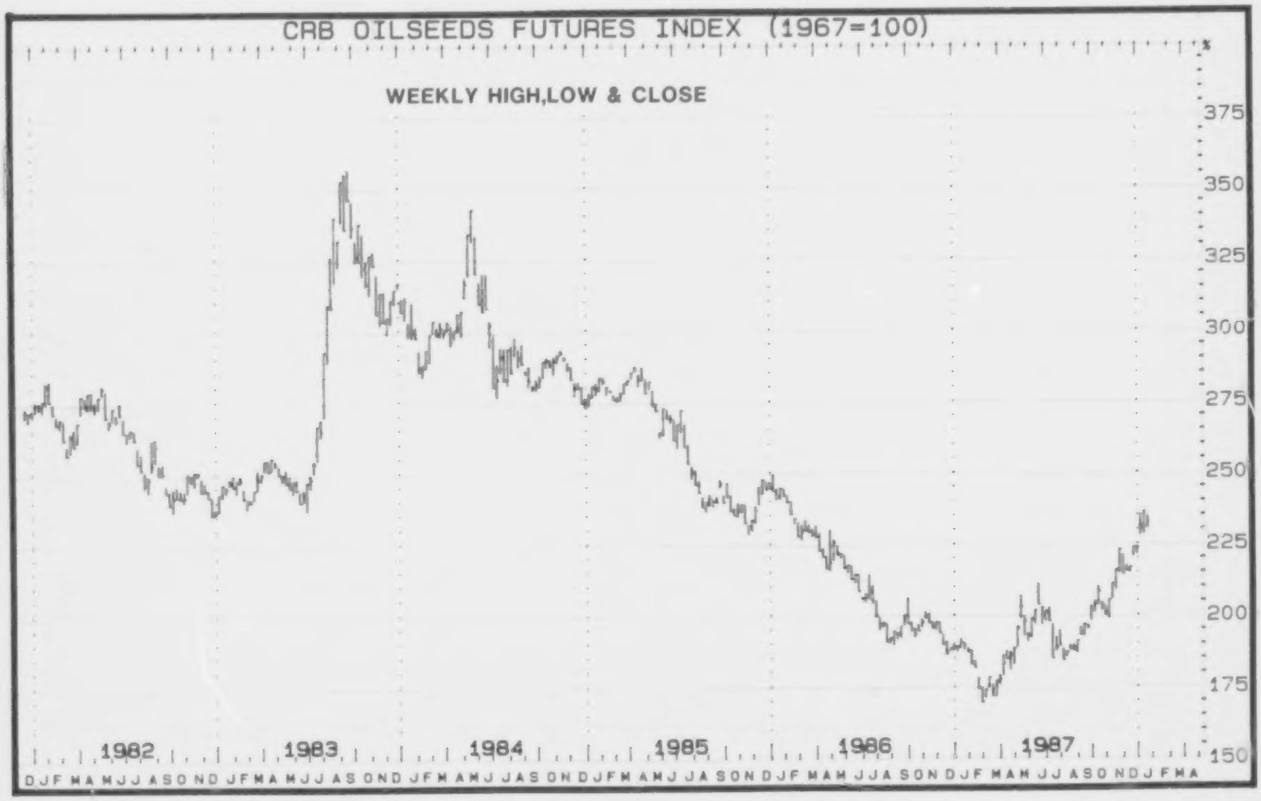

CRB IMPORTED FUTURES INDEX (1967=100)


CRB INDUSTRIALS FUTURES INDEX (1967=100)



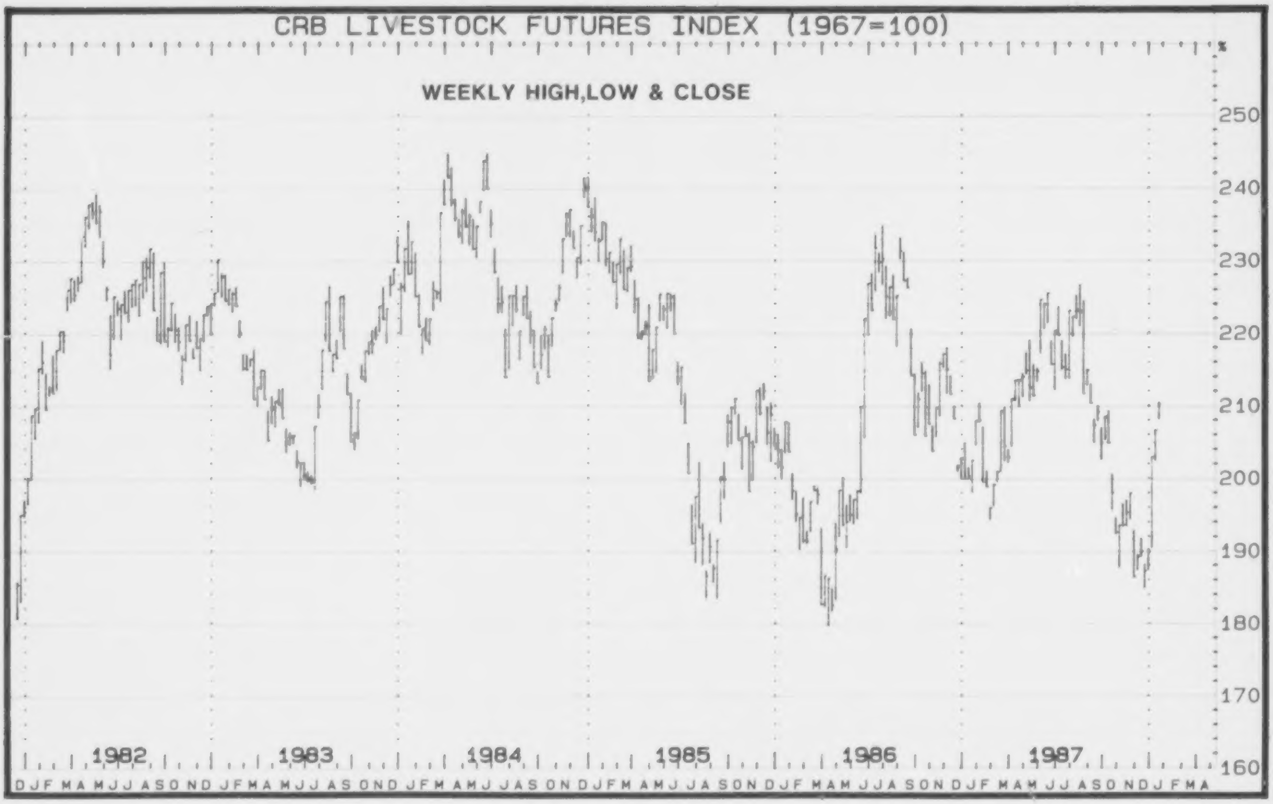
CRB GRAINS FUTURES INDEX (1967=100)

WEEKLY HIGH,LOW & CLOSE

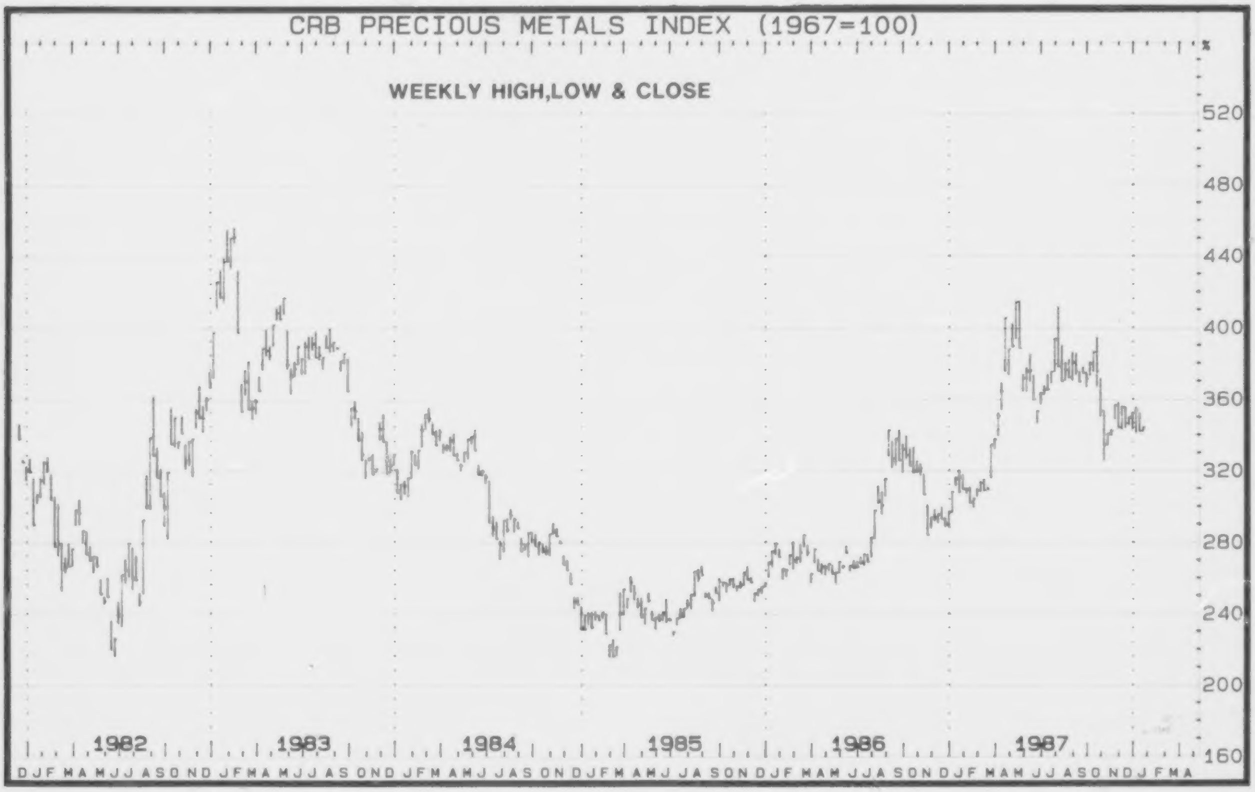


CRB OILSEEDS FUTURES INDEX (1967=100)

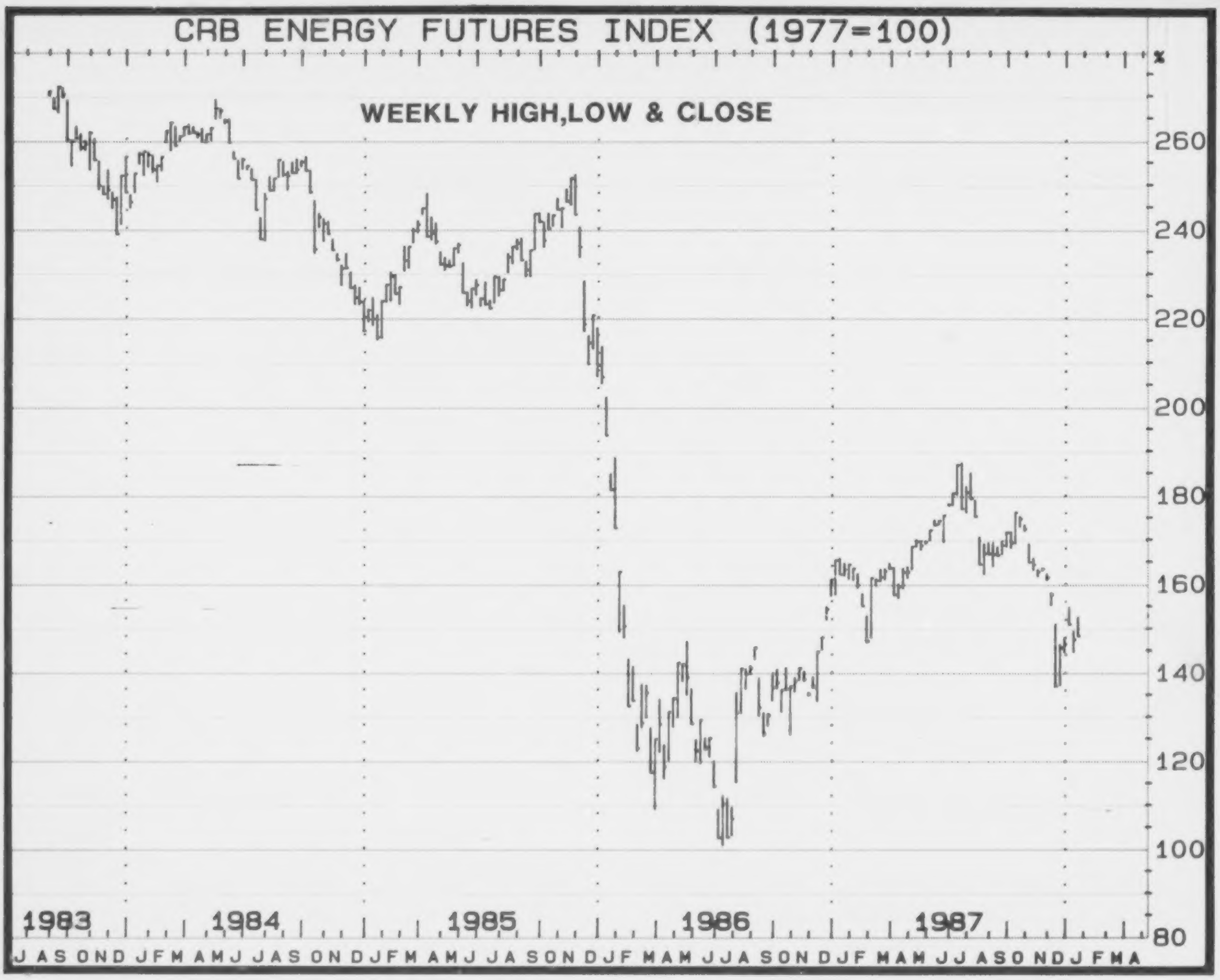
WEEKLY HIGH,LOW & CLOSE

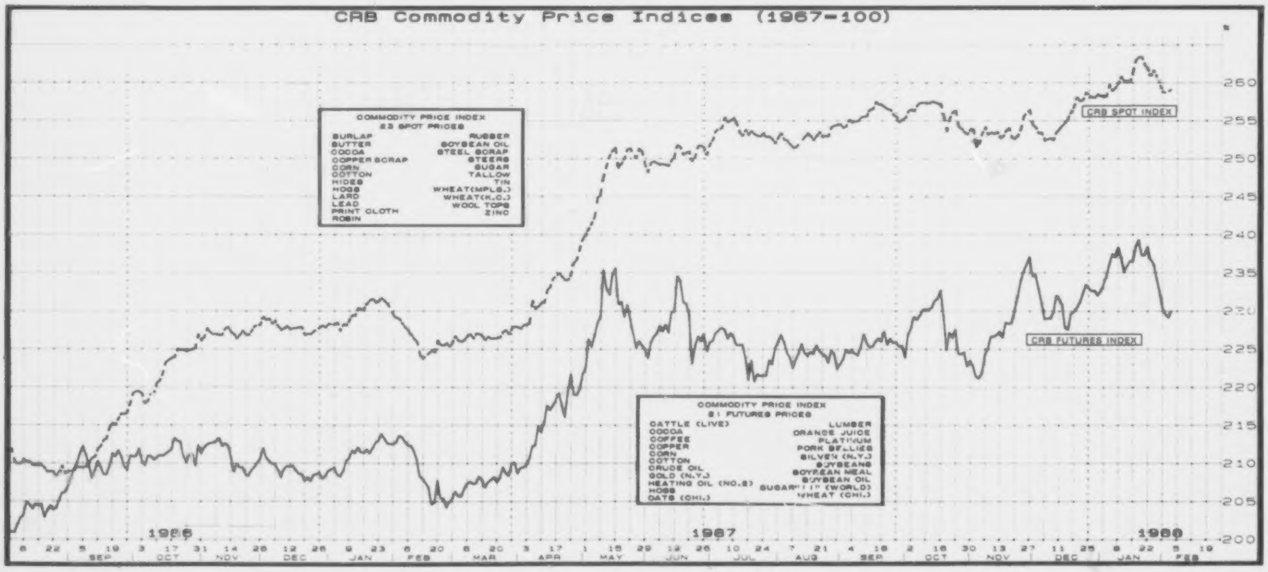

CRB LIVESTOCK FUTURES INDEX (1967=100)

WEEKLY HIGH,LOW & CLOSE


CRB PRECIOUS METALS INDEX (1967=100)

WEEKLY HIGH,LOW & CLOSE


CRB ENERGY FUTURES INDEX (1977=100)
WEEKLY HIGH,LOW & CLOSE
%
260
240
220
200
180
160
140
120
100
80
1983
1984
1985
1986
1987
J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A


CRB Commodity Price Indices (1967=100)
COMMODITY PRICE INDEX
23 SPOT PRICES
BURLAP
BUTTER
COCOA
COPPER SCRAP
CORN
COTTON
HIDES
HOGS
LARD
LEAD
PRINT CLOTH
ROSIN
RUBBER
SOYBEAN OIL
STEEL SCRAP
STEERS
SUGAR
TALLOW
TIN
WHEAT(MPLS.)
WHEAT(K.C.)
WOOL TOPS
ZINC
CRB SPOT INDEX
CRB FUTURES INDEX
COMMODITY PRICE INDEX
21 FUTURES PRICES
CATTLE (LIVE)
COCOA
COFFEE
COPPER
CORN
COTTON
CRUDE OIL
GOLD (N.Y.)
HEATING OIL (NO.2)
HOGS
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HEDGING IN STOCK INDEX FUTURES : LESSONS FROM THE CRASH

BY JAMES M. NEVLER

To those of us working on Wall Street--the industry--the question, "Where were you on Black Monday?" releases a torrent of memories as deeply embedded in our psyches as the bombing of Pearl Harbor is to our parents or grandparents. Both events were watersheds. And both fit the classic Greek definition of a tragedy (unlike Wall Street--the movie), but not because of the immense damage and suffering they caused. They were tragic because of the complacency with which the signs of danger were ignored.

One reason for the lack of concern about the danger signals before the crash is the abundance of modern theoretical solutions to the problem of unacceptable downside risk. The purpose of this article is to examine why those theories did not match reality on the stock market's "day of infamy." Like the events of December 7, 1941, the 508-point drop in the Dow Jones Industrials on October 19, 1987, did not happen in a vacuum. And it was not caused by the modern weapons that globalized the crash within minutes. They only spread the fallout. Greed, that deadly sin no market is without for long, deserves its share of the blame. However, in my opinion, the character flaw that lead to the destruction of some $1 trillion in market value during the crash was hubris, i.e., the absence of fear until it was too late.

That attitude has been partly blamed on the fact that many traders and money managers had never lived through a bear market; the last serious one ended before they got their MBAs and BMWs. They had not yet learned the meaning of fear, although many were directly responsible for managing millions of dollars. Many other money managers thought that the possibility of financial ruin had been eliminated by options, futures and a variety of sophisticated hedging strategies built by mating the latest in finance theory with the latest in personal computers.

The Handwriting On The Wall

By all the classic tools of fundamental stock valuation, the big-capitalization stocks that make up the Dow Jones averages and the S&P 500 were grossly overpriced in the summer of 1987. Value-oriented investors were hard-pressed to find a security that offered the potential for earnings growth to justify its current price. Many had sold out of the market earlier in the year, well before price-earnings ratios climbed over 20 on both the Dow and the S&P 500. Dividend yields on the indices were under 3 percent, while 30-year government bonds were yielding more than 9 percent as the market approached its top in mid-August. There was no way dividend increases would be huge enough to close the spread between bonds and equities, and in any case the age of the economic recovery was raising tough questions about its remaining vigor and life.

But perhaps the best reason for skepticism was the widespread talk that somehow this market would be different from all the others. After all, securities trading now was a global affair, and compared with P/Es over 70 in Japan, U.S. blue chips were still cheap. Besides, with the bond market in retreat and the dollar sinking, U.S. corporations were still the best game in town, especially for money managers who are considered no better than their previous quarter's performance rating. Profits just had to be plowed back into stocks. Or so the arguments went. Those who warned of the potential for the fundamentals to reassert themselves got the same reaction Cassandra did when she told the Trojans to short wooden horses.

During September, the pressures on the financial markets intensified. In order to defend the dollar, the Fed raised the discount rate. Meanwhile, the trade and federal budget deficits widened, raising the uncertainty in the market. Prices began trending down amid increasing daily trading ranges. Huge drops were followed by equally large, but nowhere near as unsettling, price gains. Often those swings were tied to economic statistics of dubious predictive value.

In the week prior to Black Monday, volatility seemed to increase exponentially each day. October 16 saw the Dow post its first 100-plus closing change, a downer in more ways than one. The long-awaited bull market 10 percent correction was turning into a rout. Over the weekend, Treasury Secretary Baker threatened to let the dollar seek its own level in order to teach the Germans a lesson about international trade relations. Before New York could open for business on Monday, overseas stock markets were already in free-fall.

Investors attempting to reduce their equity exposure turned to selling stock index futures, the most liquid and cost-efficient way to do so. The S&P 500 futures contract opened down 18.25, a record 6.5 percent decline.[1]* Meanwhile, the New York Stock Exchange struggled to open trading in individual stocks, the specialists on the American Stock Exchange strugged to handle the sell orders they were flooded with, and the over-the-counter broker-dealer network collapsed under the weight of phone calls. By the time all the stocks in the S&P 500 were open, the index was down 7.5 percent.[2] Because the futures market had opened promptly, it was a logical target for those who could not even get quotes on the stocks they wanted to dump. But the futures market did not cause the decline.

Because of the huge amounts of money involved, institutional investors no longer trade individual stocks; they trade entire portfolios worth billions.[3] One mutual fund, inundated by phone calls ordering funds transfered from stock portfolios into money

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FOOTNOTES WILL FOLLOW ARTICLE

market funds, is reported to have sold $900 million in stock on Black Monday. Also, a major corporate pension plan was reported to have dumped over $1 billion in securities. With stock indices in free-fall, conditions appeared ripe for abuse by program trading.

Program trading is the method used to arbitrage a stock index against the underlying securities. Because of the short sale rule (you can only sell stock you don't own on an uptick), it is theoretically difficult to short the entire S&P 500 against the index. But an institution with stock can sell the issues, put the proceeds in T-bills and replace the stock with long futures.[4] Some did, but there were rumors of short-selling by broker-dealers doing index arbitrage without regard for the uptick rule.[5] But even if this was not true, brokers used the Big Board's automated order routing system, called SuperDOT, to send in the stock side of the arbitrage. These orders jammed the system well beyond capacity. Specialists are supposed to fill SuperDot orders for 2,000 shares or less within a few minutes. But even if they had the capital --or the desire to commit financial hari kari--the system was so jammed with orders that they could not be processed, let alone filled, and this further unhinged the markets.[6] Furthermore, use of SuperDOT by broker-dealers raised serious questions of front-running customer orders and of the propriety of trading for house accounts in competiton with customers.[7]

However, portfolio insurance strategies apparently accounted for most of the damage. Some $4 billion in short futures positions had been put in place in the week before the crash. But the mathematical models used to determine what size position to put on (we will discuss them in more detail later) suggested that U.S. trading opened on October 19 with $12 billion in portfolio insurance selling to be done. Up to $30 billion in short futures positions may have been established in the week of October 19. Three firms accounted for $2 billion or so in sales on Black Monday alone.[8] Also, some portfolio insurers waited for the market to bounce before selling their futures. When they finally threw in the towel, they had to sell even more futures to compensate for the decline in the value of the positions they were supposed to be protecting, in effect throwing gasoline on the fire and helping to drive the market to its bottom.[9] Naturally, when the market bounced back on Tuesday and Wednesday (ironically the largest point gains in the history of the Dow), the insurers who were underhedged on the way down were overshort on the way up.

The Brady Commisssion Report

It was inevitable that the crash would trigger an investigative binge, and President Reagan responded to the pressure to find out what happened and why by appointing a presidential commission chaired by Nicholas F. Brady, chairman of Dillon, Read & Co. The Brady Commission's conclusions are by no means the last word on the crash. The General Accounting Office released its report on January 26, and the Securities and Exchange Commission also had a report. And it probably is a safe bet that generations of children yet unborn will be writing doctoral dissertations about Black Monday. Nevertheless, the Brady Report noted that stocks, options and futures should be seen as different parts of the same big market. The failure of the links between the underlying instruments and their derivatives to hold during the crash was cited as a major factor in the size of the crash. The commission recommended circuit breakers be established between the markets--trading halts whenever prices got too far out of line, limits on daily price changes for stocks and bonds, and consistent margin requirements for stocks, options and futures. The commission also noted that no single regulatory agency was in charge, and that as a result the actions in the various markets were at cross purposes. The report suggested giving the Federal Reserve Board, which sets stock margin requirements, an oversight role in regulating the regulators.[10]

The report said that only a relative handful of institutions dumped stocks, bonds and futures in a wide variety of markets all over the world. Ironically, the General Motors pension fund was reported to be selling out of equities while GM (among dozens of others) was announcing a corporate stock buyback program. But most of the blame was put on portfolio insurance. Those that had sold customers on the theory learned a painful lesson about the illusion of liquidity. When they tried to get out, there were no exits left.[11] Once again, money managers learned the hard way that: "you cannot buy and sell billions of dollars worth of stock without any concern for market impact."[12]

Program Trading--Dark Side of the Force?

When stock index futures were first proposed, the lack of a deliverable instrument was not considered a problem. Cash is always nice, and it was considered too expensive and tricky to put together an arbitragable package for most of the indices. However, a computer does not mind tracking dividend dates, stock splits, changes in components and the myriad of other details in designing and executing an arbitrage. Soon, purely mechanical programs were in place to take advantage of out-of-line prices. But these programs, while they are purely mechanical, are unbiased. It makes no difference to the computer whether it is buying or selling stocks. It is simply buying cheap and selling dear, regardless of which is which. When futures are overpriced, it buys stocks and sells futures; when futures are too cheap, it sells stocks and buys futures. This is morally no different than arbitraging sugar, copper or T-bonds between London and New York.

As in all futures contracts, the difference between the prices of the cash commodity and the futures contract is called the basis. With a stock index contract, the futures price should equal the value of the futures price for each stock in the index. That futures price has to be approximated, since a futures contract does not exist on each stock, but it is not that difficult to do so. A stock certificate is a storable commodity. The costs of storage (in a safe deposit box or in street name) and insurance are low. But there are opportunity costs for the capital used to finance the stock. Ignoring the extra expense of buying a stock on margin, paying cash still involves giving up the chance to invest the funds elsewhere. That cost usually is approximated using a market rate of interest adjusted for the stock's beta (the stock's systematic risk, or how much the value of the stock is expected to change relative to the value of the overall market).[13] If you are going to arbitrage the S&P 500, however, your beta should be 1, since most versions of the capital asset pricing model (the infamous source of betas) use the S&P 500 as a proxy for the entire stock market.

To do a program trade, most arbitragers use a subset of the S&P 500 to cut costs. But this still involves from 300 to 350 stocks and an investment of from $5 million to $10 million per trade to minimize tracking error. Also, even at negotiated rates, commissions on the stock side can run from 10 to 15 cents per share, round trip, and prices could always change drastically during the implementation or unwinding of a program position. Computers can be used to prepare order tickets in advance, so that merely pushing a button puts them into the SuperDOT system for theoretically immediate execution. It would be next to impossible to call in 350 orders to 350 specialists at once using humans, and time is of the essence in any arbitrage. If the trade requires a short sale, the inability to obtain an uptick to sell on could more than erase the potential locked-in profit.[14] If the trade is not absolutely certain, by definition it cannot be an arbitrage. To avoid all risks from the securities not matching the S&P 500, it has been estimated that it would cost about $25 million to arbitrage all 500 stocks. However, the Major Market Index could be arbitraged with an investment of about $3 million per trade.[15]

Since the cash price and the futures price must be equal when the futures contract expires, the basis is zero at that point. But this does not mean that one always can buy stock and sell futures, because of the way the carrying charges work. Suppose, for example, the S&P 500 is at 245 on January 29, and that the futures contract expiring March 20 is at 250, but cost of carrying the cash position is 6. Theoretically, March futures should be at 251, or cash should be at 244. The trader would buy the futures, sell the cash and make one point when the position was unwound. If the basis were 5 and cash was at 244 with futures at 250, the trade is to buy stock and short futures.

The unwinding of these positions, coupled with similar strategies in the stock options markets, created the horrors of "triple witching days," the Fridays in March, June, September and December when options, futures and options on indices all expired simultaneously. There have been times where the unwinding of positions did appear to cause wide price changes during the last half hour of trading or so. Statistical studies did appear to point out an increase in volatility on those days, but the increase did not appear to be statistically significant.[16] What did increase substantially was the volume of stocks traded on those days, thanks to the phenomenon known as pseudo-delivery.

While there is the possibility of doing exchanges for physicals in stock index futures, particularly by making or taking delivery in shares of an index fund, arbitragers who want to wait until the last minute to get out of their positions tend to close out with market-on-close orders. If they are short futures, they sell their stocks to simulate the delivery. If they are short stocks, they will be buying on the close to simulate taking delivery on their long futures. If the futures trader closes out his stock position at exactly the closing prices, the profit is locked in. The trader is willing to absorb considerable price risk on the M-O-C orders in order to avoid any timing risk. This puts the specialist in the position of having to provide enough liquidity in the stock to close the market in a sane fashion![17] Since the number of shares to be bought M-O-C is quite unlikely to match the number waiting to be sold, and since there is no way to know which way the imbalance will run, closing out a position on the witching hour often was a hair-raising experience. To avoid this problem, some options expiration dates and times were changed long before the crash, so that all no longer have to settle at the same time. This introduced a timing risk and encouraged arbitragers to take their profits earlier. But it did not silence all critics of program trading.

While arbitrage theoreticaly eliminates price differentials and should curb volatility, the fear with programs is that they will increase volatility. It has not been proven statistically that programs do cause meaningful increases in volatility, but with the significant exception of NYSE Chairman John J. Phelan, Jr., nobody was complaining about the volatility when the programs were driving stock prices higher in leaps and bounds. Program traders only created "evil volatility" when they sold stocks. In any case, the full impact of program trading on October 19 and 20 has to have been far less than it first appeared to be.

I spent part of the afternoon of the crash at a friend's trading desk in a major brokerage firm. We had three separate sources of stock price quotes in front of us--each of which was supposedly showing the latest real-time quotes. For the stocks that actually were trading, the three systems rarely matched during that afternoon. Stock index futures quotes were available directly from the trading floors through his direct lines to his floor brokers, and it would have been possible to fill an order reasonably quickly--though the price was changing rapidly. It was not the same if one wanted to buy (or sell) a few hundred shares of common stock. We could get only the vaguest indication of what the latest trade was, we had no idea of how old the quote actually was, and we had no idea of where the market currently was, or even if there was a bid and an offer, or just an offer. We did not know at the time that nine of the 12 computerized trading systems at the NYSE had broken down under the weight of the orders.

Now suppose you were a program trader. Could you have bought the depressed futures and sold the stocks? Obviously not. You had no idea of where the stocks really were--maybe even the specialist didn't have the vaguest idea. And there hadn't been an uptick for a short sale in the stock you want to sell for hours. If there was a program trader who got off his selling, perhaps from stocks in inventory, he probably would have been buying futures contracts from portfolio insurers and would have been narrowing the spreads between stocks and futures. While I cannot prove it, I do agree with the arguments made by the stock index futures traders that they were doing exactly the function they were created to do: providing liquidity. Like the specialists, their job does not require allowing everybody to get out who wants out. On October 19 and 20, there wasn't enough money in the world to do that. Furthermore, many of the locals in the index futures rings did not get out financially alive themselves.

Portfolio Insurance: Theory Versus Practice

The purpose of portfolio insurance is to eliminate the possibility of the value of the portfolio dropping below a designated floor. The price of that insurance is acceptance of the increased likelihood of earning only a modest return on the portfolio.[18] If that sounds like a description of hedging, it should.

Several years ago, I had to take exception with a speaker at a conference on using options and futures on financial instruments. He said that what his firm was doing was completely different from commodities trading and involved a totally new use of that heretofore undesirable activity. As I noted during the question and answer period, he wasn't offering banks and pension funds anything that COMEX did not provide to hedgers in silver, or that the Board of Trade and New York Coffee, Sugar and Cocoa Exchange did not offer to cookie makers. Financial futures (and options on those futures or on individual financial instruments) are identical to futures on pork bellies. Both are legal contracts that guarantee a specific price for a specific thing at a specific time, with the added performance guarantee of a clearing house behind them. After all, as Gertrude Stein should have said, "a hedge is a hedge is a hedge."

The theory of hedging is anything but new or secret. A classic hedge in the futures market locks in a known outcome. In pork bellies, the slaughterhouse knows exactly how much it will receive for its meat when it delivers, whether that delivery is done in the cash market or to the board. Likewise, a pension fund short bond futures knows what price it will receive for its bonds if it sells them during the delivery period, or, if the bonds are not to be sold, the value of the hedged portfolio regardless of what the bond market does. But the one thing the hedger cannot know is whether the price locked in for the hedged commodity--whether corn or common stocks--is going to be a good price. If we could know that, we would only hedge when we stood to gain from the hedge. Likewise, we wouldn't buy auto insurance unless we knew we were going to have an accident, and nobody would buy life insurance until just before his death.

An option holder has bought an insurance policy. If, for example, the stock market falls, a put on the market will theoretically gain enough intrinsic value to compensate for the loss in portfolio value. The cost of a portfolio insurance policy is the theoretical value of a European put (exercisable only on the day it expires) on the portfolio.[19] Put premiums have the disadvantage of being relatively expensive; the cost usually depends upon the level of interest rates, realized volatility of the market, transaction costs and the investor's skill in implementing the hedge.[20] And puts do reduce the yield on the portfolio whenever they are not needed. Unlike short futures positions, however, there is no additional opportunity cost if the protection is not needed.

While portfolio insurance procedures are aimed at improving the fit between the long-run performance of the portfolio and the investor's objectives, avoiding the need to "time" the market, in practice they were often used for closet market timing before the crash.[21] Instead of buying a put to lock in a profit and then rolling that put up as the market continued to gain during the summer of 1987, many money managers figured they could simply wait until it was absolutely necessary to hedge and then sell futures.

There were two reasons why the porfolio managers waited. Perhaps the most important reason, from their point of view, is the fact that they are rated at the end of every quarter, and therefore their time horizon does not match that of the funds they are managing. Logically, it make no sense to evaluate the performance of a pension fund with a 30-year time horizon over a three-month period, but corporations have felt the pressure on earnings from overfunding their pension plans, and fatter short-term profits allow slimmer contributions to defined benefit plans. Although institutional funds (including endowments and mutual funds) now are the market, money managers still are expected to beat the market in order to keep their accounts--unless they are managing an index fund, which is supposed to exactly replicate the index it is based on, save for transaction costs. Besides the obvious temptation to overtrade the portfolio in an attempt to generate capital gains at a greater rate than a buy-and-hold strategy, the "What have you done for us lately?" attitude of the plan sponsors can convince some managers to take greater risks than they otherwise would, if they thoroughly understand the risks they are taking in the first place. As William Jahnke noted after the crash:

> "The job of investment management is to manage portfolio return and risk. Yet, curiously, the vast majority of analysts and portfolio managers do not even attempt to quantify expected return or expected risk ... most current efforts at quantifying risk are based on merely measuring the past volatility of returns. Using a formalized expectational framework for estimating stock market risk is rare or nonexistant in investment management practice."[23]

To be fair, estimating the risk is difficult. If the stock market really were a casino, that would not be the case. You can calculate the exact odds on a roulette wheel or shooting dice because all possible outcomes are known. That will never be the case for an investment in a common stock. In order to use any of the methods of calculating expected return on an investment, the analyst must make heroic assumptions about the odds for favorable and for unfavorable events taking place. If that sounds next to impossible, it is. But that is what money managers, particularly those with the freedom to switch funds from stocks into bonds and/or cash, are paid to do. They are expected to buy stocks that go up in price, i.e., to speculate with their clients' money. No investment manager ever buys a stock he expects to go down.

However, many investment professionals were buying stocks that they felt were overpriced in 1987 because of their desire to continue participating in the bull market's climb to even higher levels of overvaluation,[24] in part because of the assumption that portfolio insurance would effectively truncate the excessive downside risk. Yet, the strategy touted as portfolio insurance involves buying at the margin after the market rises and selling after the market declines. This is not necessarily a "buy high, sell low" strategy because a market increase or decrease is not necessarily well-correlated with subsequent market price movements. But increases in volatility increase the odds of a whipsaw.[25]

Problems With Portfolio Insurance Strategies

One strategy marketed as portfolio insurance is called "dynamic hedging." This involves changing the effective exposure to risky assets in the portfolio by using the futures market. This theoretically works the same as buying a put with an exercise price at the desired floor value of the portfolio. Futures were supposed to allow doing this over a longer time horizon than the maturities of actual puts allowed.[26] It is well known that the overriding determinant of the total return on a portfolio is the asset mixture it contains. Over the long run (10, 20 or 30 years), a portfolio 100 percent in common stocks should have the largest total return. A portfolio 100 percent in T-bills should have the lowest total return, and a 100 percent bond portfolio should be somewhere in the middle. However, things can be quite different over the short run, and the ability to switch funds among asset classes in time will immensely add to total return. History has shown that zigging when you should have zagged will wipe out the gains from previous asset switches, but market timing models have been used to adjust asset mixtures for years, and portfolio insurance procedures had been used to allocate assets dynamically for at least three years before the crash.[27]

Portfolio Insurance Assumptions

Thanks to the computerization of finance, theoretical models now move from the blackboard to the boardroom within months, instead of years or decades, and business schools turn out thousands of people who can use those mathematical marvels. But every financial model is at best a simplification and approximation of reality built on a foundation of assumptions. As long as the assumptions appear to match the real world, the models work well enough to be used. After all, we really know that the sun does not circle the earth, but it is convenient to assume that it will continue to rise in the east. But things don't always work so well.

In philosophy, an ontological argument is built from an a priori assumption--one not proven by prior study or examination. As long as you accept the first cause in the argument, the rest of the argument must follow. But, that says nothing about the validity of the first cause. In religion, failure to accept the validity of the first assumption is heresy, punishable by excommunication or worse. On Wall Street, it often is the same--except the laws come from Wharton, Chicago and Harvard instead of from Mount Sinai.

Now let's look at the assumptions behind "dynamic portfolio insurance." The critical assumption is that futures prices will closely track actual stock prices. Until the crash, that assumption was taken as a given.[28] The failure of futures to match the price behavior of the hedged item is called basis risk, and it cannot be completely neutralized. In stock indices, however, contracts expire at exactly what the indices close at on expiration day. The futures exactly converge with cash. But on October 19 and 20, futures were not tracking common stocks because the common stocks were not trading. Maybe the correlations were still relatively close, but the arbs certainly were unable to keep them in line. When S&P 500 futures were at a 20 percent discount to the latest calculated value of the index, it was impossible to use futures to hedge against further drops.[29]

For portfolio insurance to work, expected returns, risks and correlations among the assets involved have to remain the same over the period during which the insurance plan is in force.[30] This was not the case on Black Monday. Risks in holding common stocks are usually expressed in terms of the standard deviation of the returns on the equities. Beta, the stock's correlation with the overall market, is the traditional formulation for the volatility of a stock.[31] However, statistical services will often have significantly different betas for the same stock, simply because they begin measuring the price changes on a different day or over a different time period. Even if we ignore the fact that using options drastically truncates the probable range of the distribution of returns on the portfolio, we still have another ontological problem: the assumption that returns on the investment will follow a normal distribution.

Most of the time, assuming that price changes are normally distributed is close enough to accurate to work. It is how the volatility component of option pricing models is determined. However, there is a dangerous closed loop here. Besides using samples of 20-day (or maybe 30-day) average volatilities in options valuations models, the exchange-traded options themselves are taken as explicit predictors of future volatility.[32] Yet it has been known for decades that price changes, while random, do not conform to the comfortingly familiar standard normal curve.

The normal distribution is continuous. Every possible increment will be in the universe of outcomes. It is perfect for measuring such things as height or scores on IQ tests because it is indeed possible to hit every outcome, and empirically the data have matched the expectations. But price changes do not fit the requirements for using the normal curve. First of all, they are statistically discrete, i.e., there is a minimum price change. Second, prices can go to wherever they want directly; they do not have to pass Go or to touch second when going from first to third.

Prior to the crash, investors still believed that abnormal market movements could be dealt with on a contingency basis simply by realigning the portfolio before things got out of hand.[33] Sharpe has called this strategy tactical asset allocation. The percentage of the portfolio in various assets is changed to match changes in expectations of returns on those assets. But in practice, the allocations are often based on a contrarian approach and "operate on the assumption that markets overreact to information."[34] Most of the time, stock indices will change relatively modestly from tick to tick because there are so many components that the overall impact is smoothed out. Like the action on a movie screen, the appearance of continuity is enough.

But on October 19, stocks gapped down and developed a total discontinuity in the market mechanism. Traders had no time to digest the impact of what had happened, determine a course of action and then implement a game plan. This traumatic event has forced investors to sharply revise their notions of what a tolerable level of risk is and has reminded traders of the shortcomings of the traditional models of volatility as a dispersion process that widens gradually over time, such as the formulas used in physics to measure movement of particles in the atmosphere.[35] Brownian motion formulas work fine in a closed system and were the basis for development of the random walk theory of stock market price changes. But they have problems in systems subject to what economists call exogenous shocks--lightning bolts from the blue.

Trading in all securities markets is based on information, and that information can change rapidly, say when a crop report or trade deficit figure is released. Sometimes the change in one assumption can lead to a tremendous change in price. A hostile takeover is one example of a positive price gap. But it can take only a very minor change in fundamental market assumptions to create a massive change in the price of a common stock.

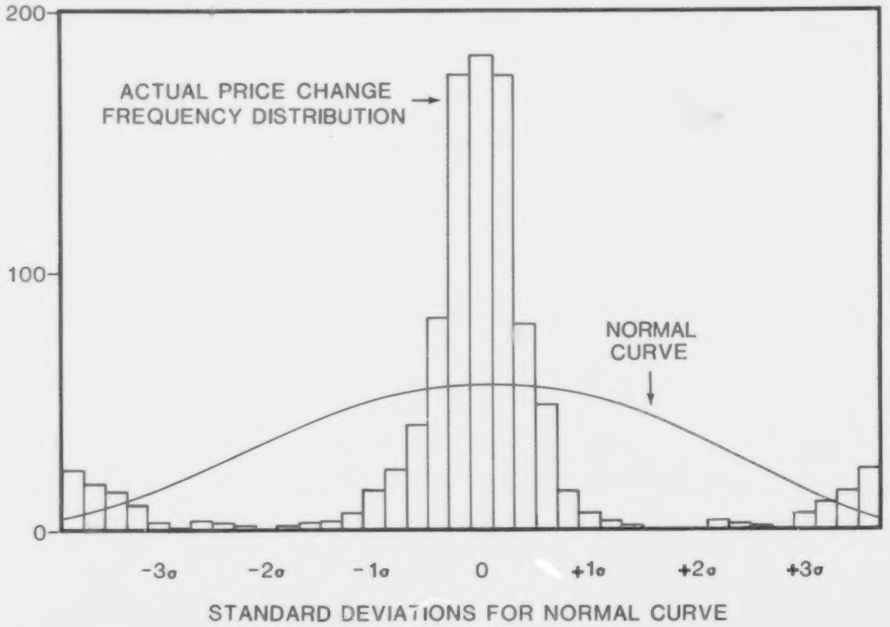
At this point it is necessary to introduce a basic stock valuation formula to this discussion, the constant-growth dividend discount model:

$$\text{Value} = d/(r-g)$$

where d is the current stock dividend, r is the rate used to discount future cash flows back to the present, and g is the rate of growth in dividends. You will find this formula in every introductory finance text. This model assumes that dividends will grow forever at a constant rate, and that the value of the stock (not necessarily its price) is determined by the difference between the opportunity cost of capital (r) and the dividend growth rate. For example, suppose MBA Widget Co. is selling at $45 a share, its annual dividend is $1 and expected to grow at a 9 percent rate, and the discount rate is 11 percent. The stock is theoretically worth $50, and value investors will be flocking to it. But suppose the cost of capital increases to 12 percent: $1/(.12-.09) = 33.333$. The stock is suddenly worth $16.67 less than it was. If the price still is $45, instead of being $5 underpriced, it is $11.67 overpriced, based on its fundamentals. Of course, the real rate of growth of dividends and the appropriate opportunity cost of capital have to be estimated by the money managers,[36] but that is what they are paid to do.

Now suppose it is October 19, and suddenly everybody is willing to admit that there is something funny about the market's new clothes. Everybody decides to sell. Everybody's broker answers the phone and asks, "To whom?" The answer is to the value investor. But his estimate of value is 33 3/8 (the closest price to his formula's). The specialist has 250,000 shares to sell at the market, but the value investors are bidding 33 3/8 for 100,000 shares. He also has sell stops at every round number from 44 to 39. Those sell stops throw another 50,000 shares onto the fire. Once the specialist has sorted out the mess, he fills 100,000 shares at 33 3/8, buys what he thinks he has to in order to smooth out his market, and eats the inventory he opened the day with. Let's assume he started the day long 50,000 shares and bought 50,000 shares on resting buy orders customers forgot to cancel. Lucky them, they also are filled at 33 3/8, better than they had requested. There still are 100,000 shares offered at the market. The specialist buys 10,000 at 33 and offers 90,000 at that price. But there are no bidders. Meanwhile the opening price travels through the quotation system, and margin call warnings are sent to people who bought at 45. They are forced to sell, and other holders see the panic and also bail out. The specialist now is long 60,000 shares. At the close of trading on October 16, his 50,000 shares were worth $2.25 million. He now owns 60,000 shares that cannot be sold for 33. He has a liquidity problem. He also has a flood of sell orders coming in.

Meanwhile, the value investors see that the stock is cheap; but they also see that nobody is buying. The specialist now has perhaps 300,000 shares to sell that he knows about and only God knows how many more backed up in the SuperDOT system. He calls his friends on the block trading desks at the major brokerage firms, and they in turn call their institu-



Financial models often assume that price changes (or their natural logs) follow a normal distribution. But empirical evidence indicates a condition called leptokurtosis, a frequency distribution with more observations clustered around the mean than in the normal distribution, and with far more in the far extremes than the normal distribution allows. Nevertheless, the capital asset pricing model (CAPM) and other keystones of modern portfolio theory assume the standard deviations of returns on investments can be calculated with some degree of accuracy, and that the normal distribution would be close enough to work. Unfortunately, CAPM falls apart just when you need it the most--at the extremes.

tional clients and the chairman of MBA Widget. The chairman announces a stock buyback program, and then the institutions do some nibbling, but at 22.

What has all of this got to do with the futures markets? Nothing that I can see. Maybe there was additional selling pressure from portfolio managers attempting to raise cash, but that would have happened even without a futures market. And there have been plenty of other price bubbles that have burst of their own volition. The crash happened not because futures markets have turned stocks into commodities; it happened because stock prices have always behaved like commodity prices.

Since Louis Bachelier began his price studies in 1900, there has been more-than-ample empirical evidence accumulated that shows price change distributions are too peaked to be samples drawn from a universe that is normally distributed. In fact, there are way too many entries at the peak of the distribution, far more than the normal curve allows at the extremes (more than three, four or five standard deviations from the mean), and far fewer than would be expected from one to three standard deviations from the mean. Benoit Mandelbrot suggested in the early 1960s that the distribution, which he named after the economist Pareto, has a mean of 0 and a standard deviation of infinity.[37] (OK, he said the variance of price changes was infinite, but the square root of infinity also is infinity.) The diagram illustrates the difference between a normal curve and Mandelbrot's "stable Paretian" distribution. Fortunately, we do not have the space to get into the mathematics of this distribution; those of you with a fondness for Greek can look it up in the Fama and Mandelbrot articles listed in the bibliography. But we can get into the implications of this price-change distribution:

> "The fact that there are a large number of abrupt changes in a stable Paretian market means, of course, that such a market is inherently more risky for the speculator or investor ... In a Gaussian (normally distributed) market if the price change across a long period of time is very large, chances are the total change will be the result of a large number of very small changes. In a market that is stable Paretian ... a large price change across a long interval will more than likely be the result of a few very large changes."[38]

Because price quotations are expressed in fractions, very small changes in value are not perceivable in the market. That is not usually a problem. The trouble comes from the empirical fact that there is a non-negligible probability of a jump in price being so large that supply and demand cease to be matched. The market could cease to function, as it did at times during the obviously not normally distributed price changes of October 19 and 20. But more importantly, the large number of larger-than-normally distributed price jumps, if they are all in one direction, cannot be eliminated by the usual market mechanisms, such as the specialists. If the changes are all in one direction, the best the specialists could do is smooth them out a bit, and the intermediate transactions are going to involve only a small number of those trying to get out of the market. "In other words, a large number of intermediate prices are quoted ... but they are likely to be so fleeting, and to apply to so few transactions, that they are irrelevant from the viewpoint of actually enforcing a stop-loss order of any kind."[39]

In August 1982, when the bull market began, the huge price changes were to the upside, and nobody complained (the short-sellers who were bagged would have, but nobody likes them anyway). During the crash, the price jumps went the other way. Maybe the standard deviation of price change isn't really infinity, but it might as well have been on Black Monday. Of course, prices fell too far. But they did eventually stop falling and establish a new value level. Can it happen again? Yes, and there is no way to predict exactly when the next random walk will take the market over a cliff.

Lessons To Be Learned

After the Cocoanut Grove fire in Boston during World War II, in which hundreds of people were burned to death because the nightclub's revolving doors were jammed by panic-stricken patrons, building codes around the world were changed to require regular doors next to revolving doors. Unfortunately, that solution won't work at 11 Wall Street. There are no exits in a financial firestorm.

Speculators--including portfolio managers--are in a market to take risks in hope of profits. Market makers on options exchanges, locals on futures exchanges and specialists on stock exchanges serve to provide liquidity to their respective markets, but they are also in business to earn profits on their speculations. When something happens to change expectations about a stock or the overall stock market, the information driving the market will take over, whether it is driving prices toward their underlying value or far away from it. Frequently--far too frequently to be dismissed as aberrations caused by evil futures traders--markets have everybody trying to do the same thing at the same time, with everybody likewise expecting it. The major significant differences--so far--between October 1929 and October 1987 are the number of new ways traders could lose their money, the speed at which the crash became a global stock-market epidemic, and the fact that the Fed did not exacerbate the crisis by squeezing off credit.

Investors have received a very expensive lesson in just how risky investing money in an engraved piece of paper can be. The comforting theories of risk control--proper portfolio betas, diversification across and among industry groups, and "if you can't beat the market, join it" in an index fund--turned out to be built on foundations of quicksand. The lunch was free, but there was one heck of a cover charge for the piper.

The NYSE has already acted to limit program trading, which has become a popular scape-goat, but there is no reason to assume that abolishing it altogether would reduce the volatility of the stock market. Markets were volatile long before there were futures, which were created to give hedgers a chance to lay off some of that inherent risk. Stock index futures don't kill stock markets; stock traders do.

As for portfolio insurance, why blame something that wasn't being used? You can't buy flight insurance when the plane loses two engines halfway across the Pacific, and you can't buy fire insurance when the flames are up to the second-story windows. So how could you insure a portfolio during a market crash?

The most obvious lesson of Black Monday is that hedges must be put in place beforehand. What the "portfolio insurance" mavens sold to their customers was nothing more than a glorified stop-loss strategy. Commodity traders have a word for the postponement of the implementation of a hedge. It's called speculating.

Footnotes

[1] William Jahnke, "The Crash of 1987," *Financial Analysts Journal*, November/December 1987, p. 8.

[2] *Ibid.*

[3] "How the Big Guns See it Now," *U.S. News and World Report*," January 25, 1988, pp. 55-56.

[4] Hans R. Stoll and Robert E. Whaley, "Program Trading and Expiration-Day Effects," *Financial Analysts Journal*, March/April 1987, p. 18.

[5] Kathryn M. Welling and Thomas G. Donlan, "The Brady Report: It Turned Wall Street Upside Down," *Barron's*, January 11, 1988, pp. 16, 51.

[6] *U.S. News*, loc. cit.

[7] Welling and Donlan, loc. cit.

[8] *Ibid.*

[9] George Anders, "Portfolio Insurance Proved Cold Comfort," *The Wall Street Journal*, October 28, 1987, p. 6.

[10] Welling and Donlan, p. 16.

[11] *Ibid.*, and *U.S. News*, p. 55.

[12] Robert Gordon, quoted in *U.S. News*, loc. cit.

[13] G. J. Santoni, "Has Programmed Trading Made Stock Prices more Volatile?", CME Financial Strategy Paper, reprinted from *The Federal Reseve Bank of St. Louis Review*, May 1987.

[14] Ira. G. Kawaller, "Debunking the Myth of the Risk-Free Return," CME Financial Strategy Paper, 1987, reprinted from *The Journal of the Futures Markets*, Vol. 7 (1987), No. 3 pp. 327-331.

[15] Stoll and Whaley, p. 20.

[16] Santoni, loc. cit.

[17] Arnold Kling, "How the Stock Market can Learn to Live With Index Futures and Options," *Financial Analysts Journal*, September/October 1987, p. 36.

[18] Roger G. Clarke and Robert D. Arnott, "The Cost of Portfolio Insurance: Tradeoffs and Choices," *Financial Analysts Journal*, November/December 1987, p. 39.

[19] William E. Jacques, "Portfolio Insurance or Job Insurance," *Financial Analysts Journal*, January/February 1987, p. 7.

[20] *Ibid*, p. 36

[21] William F. Sharpe, "Integrated Asset Management," *Financial Analysts Journal*, September/October 1987, p. 29.

[22] Jacques, loc. cit.

[23] Jahnke, p. 6.

[24] *Ibid.*, p. 8.

[25] Clarke and Arnott, p. 45.

[26] *Ibid.*, p. 26.

[27] Sharpe, p. 25.

[28] Anders, p. 6.

[29] *Ibid.* (I am stating the obvious here, but others have beaten me into print with it. Several people predicted this would be the case well before the crash.)

[30] Sharpe, pp. 30-31.

[31] Clarke and Arnott, p. 43, goes into this briefly. But any finance text would have a discussion of the CAPM. Sharpe's Portfolio Theory is the classic text on the CAPM. Over the years, Richard Roll has published numerous articles poking holes in the CAPM.

[32] Martin L. Liebowitz, "The Legacy of Discontinuity," *Financial Analysts Journal*, November/December 1987, p. 13.

[33] *Ibid.*, p. 12.

[34] Sharpe, pp. 28-28.

[35] Liebowitz, p. 12.

[36] Jahnke, pp. 6-7.

[37] Benoit Mandelbrot, "The Variation of Certain Speculative Prices," reprinted in Cootner, *The Random Character of Stock Market Prices*, pp. 307-308.

[38] Cootner's book was published in 1964. Besides the Fama and Mandelbrot articles, it contains numerous others that point out the problems of predicting how much the price of a stock or a commodity can change.

[39] Mandelbrot, p. 330.

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THE OUTLOOK FOR INDUSTRIAL AND AGRICULTURAL COMMODITIES FOLLOWING THE 1987 STOCK MARKET PLUNGE

BY SUSAN BUCHANAN

Commodities Benefit From Soft Dollar And Export Expansion

While the stock market plummeted in late 1987, the commodity markets suffered only a temporary setback and continued to recover from a long bear market slump, which extended from 1982 to mid-1986. A major factor boosting prices of many commodities in the U.S. during 1987 was a surge in exports, resulting from the weaker dollar and government export subsidies on farm products.

Although the U.S. trade deficit widened, there were some encouraging signs in the picture. U.S. exports expanded by 15 percent in 1987, as shipments of both agricultural and non-agricultural products rose. The country's imports rose by a lesser extent, 10 percent, with continuing gains in imports of non-petroleum products.

On a monthly basis, the trade deficit reached a worrisome $17.6 billion, a record, in October 1987, but it narrowed in subsequent months. November's deficit was $13.2 billion, and December's was $12.2 billion. For the year, the trade deficit was $171 billion, up from $166 billion in 1986 and nearly five times the 1980 level ($36 billion). (Tables 1 and 2)

The economy grew at a respectable rate of 2.9 percent, in real terms, in 1987, the same as 1986's rate. Consumer spending was brisk during much of the year, although it began to dry up in September before the stock market plunge. Retail sales were off considerably in September and October of 1987, but picked up again from November 1987 to January 1988.

Manufacturing: Industrial production rose by 5.2 percent in 1987, as strong export demand stimulated manufacturing, particularly basic industries. Chemicals, paper, textiles, steel, and machine tools were examples of industries that increased production and showed higher profits for the year. Capacity utilization rose, reaching 82.4 percent (the highest in almost eight years) at the end of 1987. In a number of industries, like paper, textiles, and primary metals, it leapt to over 90 percent. Additionally, durable goods orders rose by 19.2 percent during the year, and durable goods shipments were up 9.8 percent. However, business inventories also increased, particularly in the last quarter, and were up 7.1 percent for the year.

The pick-up in orders and acceleration in industrial activity created jobs and reduced unemployment in manufacturing. Manufacturing's renewed strength was seen as a welcome development by economists and government officials concerned about a potential slowdown in consumer spending.

Agriculture: The agricultural sector's performance was mixed in 1987, with gross income from crop farms down 3 percent from a year earlier, but receipts from all livestock enterprises up by over 10 percent. Reduced production and relatively low prices received by farmers for most crops, except cotton, lowered farm incomes. Nonetheless, the weaker dollar and more competitive U.S. prices (due to changes that began with the 1985 Farm Bill) allowed U.S. agricultural exports to rise by 20 percent. An important contributing factor was USDA's Export Enhancement Program (EEP), which provided subsidies on export sales of wheat, soybean oil, barley, cattle, poultry, and other products to selected countries. With the pick-up in exports, burdensome stocks of agricultural commodities were drawn down.

Exports of many major U.S. farm products--wheat, corn, soybean meal, and cotton--rose substantially in fiscal 1987, after the previous year's downturn. Moreover, high-value exports like livestock and horticultural products expanded. As U.S. cotton became increasingly price competitive, thanks to both the dol-

Table 1-- U.S. Merchandise Exports by Type of Product
(billions of dollars)

			Seasonally Adjusted at Annual Rate		
	1985	1986	1987		
			I QTR.	II QTR.	III QTR.
Merchandise exports	220.8	224.9	235.6	247.4	267.2
agricultural products	29.6	27.0	26.2	28.7	33.6
non-agricultural products	191.2	197.9	209.4	218.8	233.6

Source: Dept. of Commerce, Bureau of Economic Analysis

Table 2-- U.S. Merchandise Imports by Type of Product
(billions of dollars)

	1985	1986	Seasonally Adjusted at Annual Rate 1987 I QTR.	 1987 II QTR.	 1987 III QTR.
Merchandise imports	341.0	367.5	386.1	401.8	421.7
petroleum products	50.4	33.8	34.8	40.0	50.6
non-petroleum products	290.6	333.7	351.3	361.9	371.1

Source: Dept. of Commerce, Bureau of Economic Analysis

lar and a government marketing loan pressing domestic prices downwards, Asian buyers made large U.S. purchases. U.S. corn and soymeal exports climbed, helped by efforts on the part of the USSR and developing countries to boost livestock production. And export sales of wheat and flour picked up under USDA's subsidized export program. (Table 3)

Virtually All Commodities Prices Higher in 1987

The acceleration in exports and a drawdown in previously heavy inventories of some commodities (such as corn, wheat, soybeans, and copper) were reflected in the improvement in commodity prices in 1987. Having begun to rebound in summer 1986, prices continued upwards in 1987. The CRB Spot Price Index, comprised of 23 cash commodities prices, registered a 13-percent gain in 1987. It was led by the raw industrials spot group index, which leapt 19 percent during the year, and not only emerged from a bear trend, but reached the best level since late 1980. The raw industrials spot index, tracking 13 cash commodities, was helped by spiraling prices of copper scrap, steel scrap, cotton, and print cloth. Its strength reflected brisk demand for raw materials stemming from the rebound in basic industries. (Charts 1 and 2)

Table 3-- U.S. Exports of Major Agricultural Commodities, FY 1984-87
(thousand metric tons)

	1984	1985	1986	1987
Wheat	41,699	28,523	25,500	28,233
Wheat flour	1,071	718	1,094	1,421
Feed grains[1]	55,546	55,362	36,261	47,658
Rice	2,293	1,972	2,382	2,454
Soybeans	19,265	16,621	20,139	20,322
Oilseed meal[2]	5,060	4,606	5,614	6,819
Cotton	1,481	1,277	482	1,306
Meats[3]	647	661	716	924

1. includes products
2. mostly soybean meal
3. includes poultry meat

Source: Economic Research Service, USDA

In comparison, the foodstuffs spot index showed a smaller gain in 1987. The foodstuffs index hit an almost 3-year low in February 1987, rose in the spring as prices surged temporarily, and then slipped in the summer. Later, it rebounded somewhat, ending the year up 5 percent.

The CRB Futures Price Index, which includes prices of 21 (non-financial) commodities, climbed 11 percent in 1987. All commodity futures groups rose considerably, with the exception of the livestock group, which finished 1987 lower. The industrials futures group index (including cotton, copper, crude oil, lumber, platinum, and silver) was up 20 percent. And the precious metals futures group (gold, silver, and platinum) rose by 17 percent.

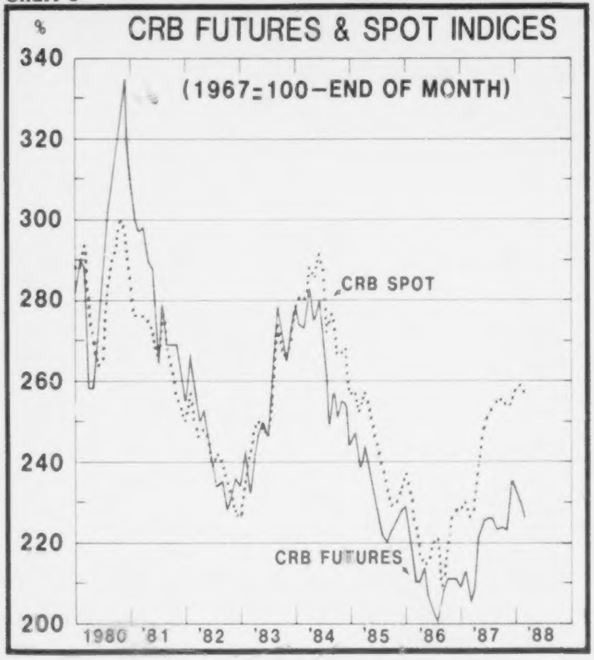
The oilseeds futures group (soybeans, rapeseed, and flaxseed) showed a year-over-year gain of 18 percent, while the grains group (wheat, corn, oats, and soymeal) advanced by 13 percent. And the imported or softs group (coffee, sugar, and cocoa) was up 11 percent. However, the livestock futures group (cattle, hogs, and pork bellies) fell by 5 percent.

The noteworthy jump in the industrials futures index was partly accounted for by strong advances in prices of cotton and copper. Cotton futures rocketed from mid-1986 to September 1987 on surging export sales and on brisk U.S. mill use, resulting from rising U.S. demand for cotton garments and textiles. Copper futures doubled from mid-1987 to year's end, as domestic and overseas inventories were drawn down, following five years of declining copper production world-wide. (Charts 3, 4 and 5)

Commodity Price Performance Since the Stock Crash

During and immediately after the stock market crash in October 1987, raw materials prices and commodities futures plunged. Beginning on October 19, many raw materials spot prices dropped for several weeks, and then began to pick up again. Prices of industrial metals--copper, aluminum, steel, and others--were strong in the second half of the year, in the wake of good manufacturing demand and following inventory drawdowns. Spot prices of foodstuffs also strengthened in late 1987,

Chart 1



as stocks of wheat, corn, soybeans, and dairy products were being worked down. Pipeline supplies for some of these products were tight, and export demand was continuing to expand. The CRB Spot Price Index reached its 1987 peak of 258.68 on December 24, and continued to climb in January 1988.

In the futures markets, commodities prices slumped during the crash as worries about recession and deflation circulated the markets. Liquidation of positions to meet margin calls also weighed on commodity futures. But the drop in prices was short-lived, lasting only several weeks, and was followed by healthy rebounds in many of the markets. Copper, grains, oilseeds, and soft commodities came bouncing back. The livestock markets rebounded in January 1988.

However, futures prices of cotton and precious metals were adversely affected over the longer term by the plunge in stocks. The cotton market was hurt by fears that consumer spending would drop, and precious metals by deflation concerns. Petroleum futures also retreated following the crash, but the decline was related to another factor, OPEC's above-quota production of crude oil.

Nonetheless, among the components in the CRB Futures Price Index, winners outweighed losers just a month after the crash, and the Futures Index climbed to its 1987 high of 237.08 on November 27. In January 1988, the index rose further, reaching 239.31, the best level since May 1985.

Commodity Outlook Favorable with Continued Export Growth in 1988

At the time of this writing (February 1988), the outlook for U.S. industrial and agricultural commodity prices is considerably better than it was during October 1987's financial panic. Earlier views that the economy was on the verge of slipping into a recession have been scrapped. Most economists now generally expect sluggish growth in 1988, in line with the Reagan administration's forecast of a 2.4 percent rise in real GNP during the year. Many analysts expect the economy to be led by manufacturing in 1988. Consumer spending, which fueled growth in recent years, could steady or dip somewhat during the year.

Continued expansion in basic industry bodes well for raw materials prices in 1988. However, it's possible that growth in manufacturing could be less vigorous in 1988 than in 1987. Businesses may cut back on orders to whittle down inventories that accumulated in late 1987. Makers of steel and other primary metals operated at 89.6 percent of capacity in January 1988, down from 91.2 percent in December. Capacity utilization for all manufacturing in January was 82.4 percent, unchanged from December 1987. Overall U.S. demand for industrial raw materials, such as primary metals and forest products, is expected to remain healthy in 1988, if not as brisk as in 1987. And the outlook for textiles, which was pessimistic after the stock market crash, appears to be improving again, as better-than-expected monthly retail sales numbers come in.

In the agricultural sector, the USDA is forecasting further improvement in the supply/demand balance for most major U.S. farm products in 1988. Continued export expansion and stock drawdowns are expected, particularly for wheat. Even if the dollar firms somewhat, government export subsidies and relatively cheap prices of most farm commodities, compared to levels several years ago, indicate a good shipment pace. Wheat shipments in fiscal 1988 should be 50 percent above the previous season. Moreover, exports of corn, soybeans, and soymeal are all slated to rise. With improved demand, in the face of lower supplies, agricultural prices should rise moderately over the year.

Chart 2

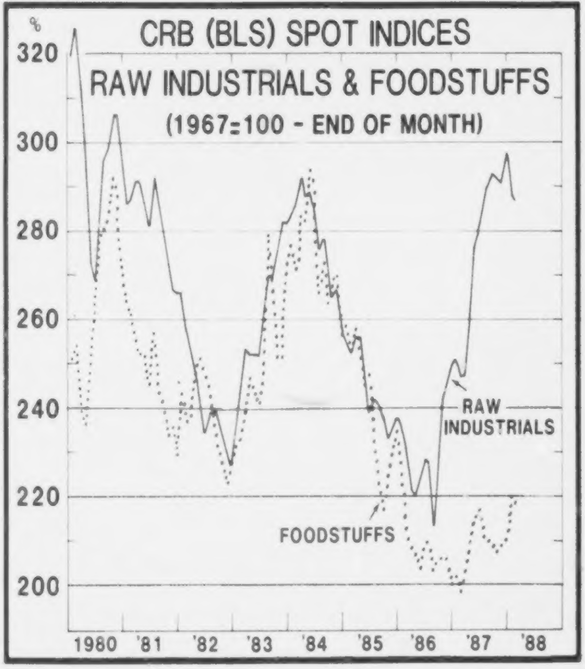


Chart 3

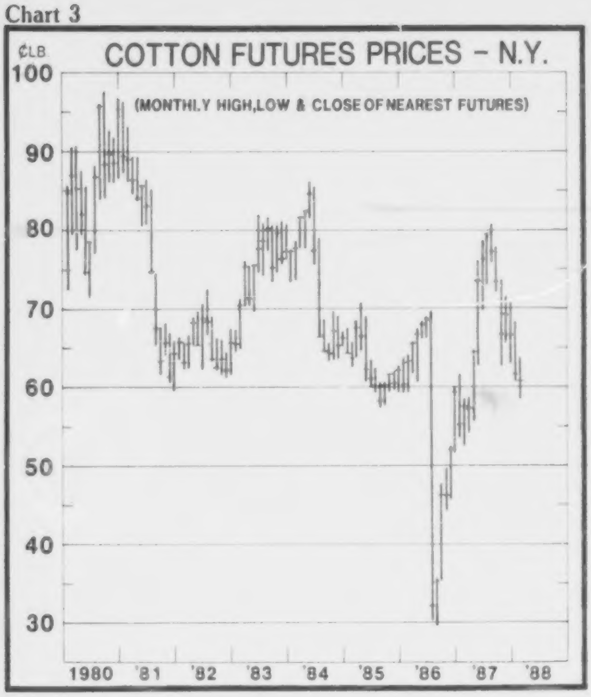


Chart 4

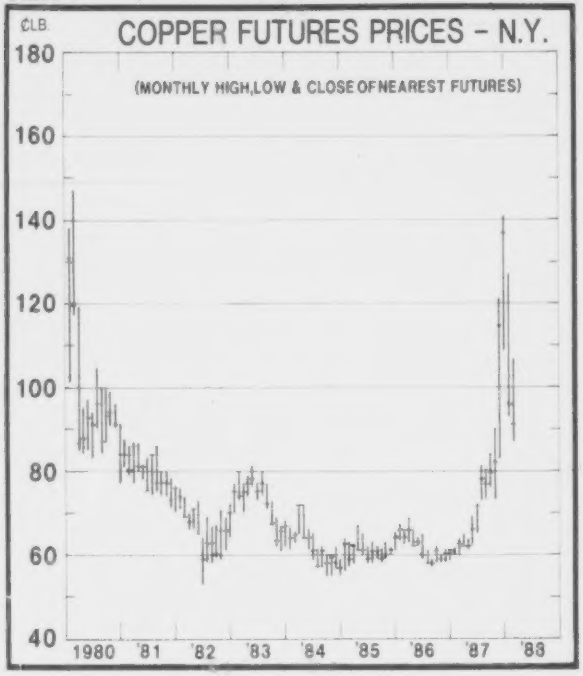
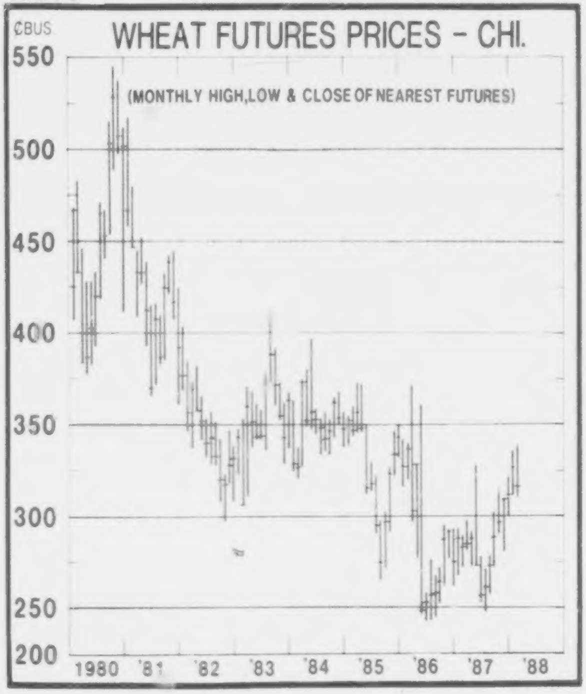


Chart 5



USING THE COMMODITY YEAR BOOK

BY JAMES M. NEVLER

We've all heard the story about the plumber who repaired the broken heating system by pulling out a mallet and tapping on one pipe for 10 seconds. His bill was $50. When the outraged customer asked him to itemize it, he responded:

tapping on pipe:	$ .10
knowing where to tap:	49.90
total:	$50.00

This book, which like its first edition published at the end of the Depression in 1939 is largely composed of data already in the public domain, is almost unique among books on commodities in never offering its buyers a quick or easy formula for riches. In fact, much of the information still is available free from the federal government. However, tapping into the information pipeline can be awfully difficult if you don't know where to tap.

Unless you open the book randomly, pick a promising set of tables and copy the numbers onto your lotto ticket (and the state agrees with your choices), it also is unlikely that you will make a fortune with this edition. But while this article will not show you how to get rich, it will show you why you will find this book within arm's reach of legions of economists, financial writers, purchasing agents and analysts--including many of the experts whose work is used to prepare this tome. The *Commodity Year Book* may not have all the answers, but it does have more than enough for many purposes. And in my own research, it has often helped me ask the right questions.

Reading the table of contents on Page 3T shows that every commodity in the book--except electricity--is traded on a free market. (Often that market includes a futures contract traded on a regulated exchange. But a free market can also be a network of telex machines, or telephones or the produce dealers at Hunts Point.) Electricity usually is bought from or sold to monopolies, but even it fits in the mission of this book because it is a substitute for natural gas, coal, and fuel oil, as well as a product that can be made from them. And electricity also is a critical raw material in the manufacture of aluminum and the numerous products produced or purified by running an electric current through something. But electricity is not unique in its web of relationships. A surprisingly large number of the entries in the year book are related to other entries, and it is those often overlooked but economically critical relationships that create this book's market niche. In an era of increased specialization, the year book is a one-stop source of basic information. Name the commodity, and the book will tell you where it is produced, what it has cost recently and how much was believed to be available when it cost that much. But why get the data from us, instead of the primary source?

A brief glance at the acknowledgments page gives an indication of why people reach for the year book first. The multitude of data sources used to prepare each volume, since every number except those for our CRB Futures Price Indices and CRB (BLS-formula) spot price indices has to be copied from its original source, imposes a heavy opportunity cost in starting each inquiry from scratch. It would be like calling directory assistance before each phone call instead of grabbing the phone book. As the introduction to the 1939 *Commodity Year Book* noted:

> ". . . there existed a pressing need for some adequate reference material on commodities. . . . There were many publications covering one or two commodities and in some cases publications covering one or two groups. Nowhere was there an all-inclusive compilation. The solution was then obvious--a year book to cover all the important commodities on which information was so sorely needed, i.e., farm products, metals, tropical products, etc."

The major commodities also receive annual write-ups that tell what happened to that commodity during the previous year and what was expected to happen during the book's title year. Usually, the forecasts are also in the public domain, prepared by the Commerce Department for its *U.S. Industrial Outlook*, the Department of Energy for its *Short-Term Energy Outlook*, or the U.S. Department of Agriculture for any of its numerous situation and outlook reports. Occasionally, the stories rely on forecasts by trade associations. The reason the year book carries all of those forecasts is not to accurately predict the year's happenings (though we are happy when the forecasts do hold up), but to help put the data tables into proper perspective by showing how the data available at the time were being interpreted. Whenever possible, the data tables are prepared from the same information used to prepare the forecasts.

Sometimes the data in the year book will differ somewhat from the data in the forecasts. This is a result of different time schedules. For example, the Commerce Department's forecasts for 1988 were largely written based on data available through the first three quarters of 1987. This is typical. Since those forecasts were prepared, additional months have been recorded, and many past numbers have been revised. Just keeping up with those revisions can be a full-time job. It has been the CRB's policy to go with the latest available data in its tables.

Revisions of those tables are necessary because economic statistics--including the ones we print on cement--are not cast in stone. Many tables carry three kinds of numbers. They are not Disraeli's lies, damn lies and statistics. They are forecasts, estimates and revisions. For example, an analyst at the Bureau of Mines would publish a forecast for the current year's supply and demand for a metal in the *Mineral Commodity Summaries* report, issued in January. Since the research would be done while the previous year was still under way, many of the numbers used for the previous year still would be forecasts themselves. For many commodities, only a small subset of producers and/or consumers is surveyed frequently. Statistical sampling methods are then used to extrapolate the results to the entire universe of consumers and/or producers for the period in question. When more comprehensive annual surveys are taken, the estimates for previous months or quarters often have to be revised. For the Bureau of Mines, there still were some 1986 data being finalized as 1988 began. The latest final figures on most metals and minerals in our 1988 year book, therefore, come from the individual advance copies of chapters from the Bureau of Mines *1986 Minerals Yearbook* (that's their spelling; we use two words in our title). Some of the time lag results from the time-consuming process of reconciling annual and monthly data reports, but a big chunk of the time comes from the problems of obtaining data on foreign production and consumption, particularly from nonmarket economies.

In order to keep up with the changes, the CRB publishes the *Commodity Year Book Statistical Supplement*, a slave labor of love in which some 500 monthly data tables are updated quarterly, along with whatever annual data tables have received changes. Each table in the supplement is keyed to the year book page it updates. For those of you who want to update some tables yourselves, the original data source is listed under each table in the year book.

In some cases, the data are prepared by other independent statistical services or by trade organizations or trade houses (in the case of some of our tables on cocoa and platinum, for example). Those figures are included in our book because (1) we have the preparer's permission and (2) the data are considered reliable by the people in the industry themselves. These figures may at times move markets, but experience has shown that the figures can only move the markets when they are believable--or at least the integrity of the organization issuing the statistics is unquestioned.

OK, we know we have the latest available numbers, and that they are not perfect, but they do represent the factors affecting supply and demand as they were believed to be when the book was published. So what do we do with them? We can use them to test conclusions drawn by others.

Silver is as good an example as any. In 1987, cash and futures prices rallied spectacularly. But on what? The year book shows that U.S. silver consumption fell massively from 1979's 157.4 million ounces to 124.8 million in 1980, thanks largely to the Hunt brothers. For 1986, consumption was estimated at 126.5 million ounces, the best it had been since the silver bubble burst. The Bureau of Mines expected silver demand to increase less than 1 percent per year until the 1990s. Meanwhile, free-world silver consumption, as measured by Handy & Harman, showed a similar pattern, with world mine production well in excess of consumption each year. Where did all the silver go?

One answer is nowhere. On January 1, 1980, COMEX warehouse stocks were 74.8 million ounces. By January 1, 1987, the last number in the 1987 year book, stocks had increased to 144.9 million ounces. By December 1, 1987, the inventory was 155.8 million ounces, having reached 160 million ounces at the March 1 inventory. There was more than a year's worth of U.S. silver sitting in the warehouses, at 1987 estimated consumption levels.

Nevertheless, silver prices did shoot spectacularly higher during 1987. Supplies were increasing, so they can't explain the prices. As for industrial consumption, even including the increase in coinage in the U.S., it would not account for higher prices. So what did?

A check of the volume figures in the supplement gives a heavy hint. There were 247,300 contracts traded on COMEX in January 1987, but 343,200 were traded in March and 932,700 in April. Open interest also increased from 89,400 when January began to 105,700 at the end of April. Given the increase in warehouse stocks, it would appear that the selling of futures was largely done by hedgers, and that the buying was largely done by speculators. We now have a good idea of who, but the why needs further digging.

At this point, the silver statistics have told us about all they are going to. However, the year book and the supplement are not yet out of clues. What about silver's perceived role as an inflation hedge? The supplement will show inflation fears reflected in rising interest rates, and actual price increases in petroleum products, grains and other metals during the time silver rallied the most. The CRB Futures index also reflects the change in sentiment about inflation, and the currencies data show the dollar in a prolonged decline. We don't yet know enough to draw a full conclusion. But we would be ready to test a hypothesis: the silver rally reflected a substantial increase in investment demand for silver that was part of a shift out of assets traditionally depressed by inflation to those that usually have benefited from inflation.

If this example hasn't provided a firm answer, it does at least provide a framework for analysis. In philosophy, progress is measured not by the quality of the answers as much as it is by the quality of the questions. Economics has a similar problem. Unlike the physical sciences, practitioners of the dismal science cannot repeat their experiments under controlled conditions. The best they can hope for is to learn from their mistakes. Poring over the *CRB* year book won't make you an instant expert, but it will allow you to judge just how much salt to take the experts' advice with--as well as indicating how much salt is available to take (see page 220).

FUTURES VOLUME HIGHLIGHTS 1987 IN COMPARISON WITH 1986

Rank	Contracts With Volume Over 100,000	1987 Contracts	%	1986 Contracts	%	Rank
1.	T-Bonds, CBOT	66,841,474	29.20%	52,598,811	28.53%	(1)
2.	Eurodollar, CME	20,416,216	8.92%	10,824,914	5.87%	(3)
3.	S&P 500 Index, CME	19,044,673	8.32%	19,505,273	10.58%	(2)
4.	Crude Oil, NYMEX	14,581,614	6.37%	8,313,529	4.51%	(5)
5.	Gold (100 oz), COMEX	10,239,805	4.47%	8,400,175	4.56%	(4)
6.	Soybeans, CBOT	7,378,760	3.22%	6,133,668	3.33%	(8)
7.	Corn, CBOT	7,253,212	3.17%	6,160,298	3.34%	(7)
8.	Deutsche Mark, CME	6,037,048	2.64%	6,582,145	3.57%	(6)
9.	Japanese Yen, CME	5,358,556	2.34%	3,969,777	2.15%	(12)
10.	Swiss Franc, CME	5,268,276	2.30%	4,998,430	2.71%	(9)
11.	T-Notes (6 1/2-10 yr), CBOT	5,253,791	2.30%	4,426,476	2.40%	(11)
12.	Live Cattle, CME	5,229,294	2.28%	4,690,538	2.54%	(10)
13.	Silver (5,000 oz), COMEX	5,055,652	2.21%	3,849,687	2.09%	(13)
14.	No. 2 Heating Oil, NY, NYMEX	4,293,395	1.88%	3,275,044	1.78%	(15)
15.	Soybean Oil, CBOT	3,912,417	1.71%	3,182,963	1.73%	(16)
16.	Sugar #11, CSC	3,853,499	1.68%	3,583,814	1.94%	(14)
17.	Soybean Meal, CBOT	3,797,970	1.66%	3,049,005	1.65%	(18)
18.	NYSE Composite Index, NYFE	2,915,915	1.27%	3,123,668	1.69%	(17)
19.	MMI Maxi, CBOT	2,630,887	1.15%	1,738,916	0.94%	(24)
20.	British Pound, CME	2,592,177	1.13%	2,701,330	1.47%	(19)
21.	Copper, COMEX	2,569,178	1.12%	1,872,209	1.02%	(22)
22.	Unleaded Reg. Ga[illegible]., NYMEX	2,056,238	0.90%	439,352	0.24%	(39)
23.	Live Hogs, CME	2,040,478	0.89%	1,936,864	1.05%	(21)
24.	Wheat, CBOT	1,929,306	0.84%	2,090,316	1.13%	(20)
25.	T-Bills (90-Day), CME	1,927,006	0.84%	1,815,162	0.98%	(23)
26.	Municipal Bond Index, CBOT	1,613,107	0.70%	906,980	0.49%	(30)
27.	Cotton #2, NYCE	1,395,980	0.61%	1,015,392	0.55%	(28)
28.	Platinum, NYMEX	1,361,546	0.59%	1,624,635	0.88%	(25)
29.	Pork Bellies (Frozen), CME	1,097,010	0.48%	1,100,339	0.60%	(26)
30.	T-Bonds, MIDAM	1,015,454	0.44%	467,639	0.25%	(38)
31.	Wheat, KCBOT	971,095	0.42%	744,023	0.40%	(33)
32.	Coffee "C", CSC	964,586	0.42%	1,073,142	0.58%	(27)
33.	Canadian Dollar, CME	914,563	0.40%	734,071	0.40%	(34)
34.	Cocoa (10 M Tons), CSC	895,465	0.39%	777,765	0.42%	(32)
35.	Feeder Cattle, CME	645,877	0.28%	411,441	0.22%	(40)
36.	Silver (1,000 oz), [illegible]T	509,965	0.22%	511,239	0.28%	(36)
37.	Value Line Index, KC[illegible]	505,551	0.22%	953,985	0.52%	(29)
38.	Lumber, CME	437,089	0.19%	502,530	0.27%	(37)
39.	Soybeans, MIDAM	417,620	0.18%	680,156	0.37%	(35)
40.	Dollar Index, NYCE	403,783	0.18%	166,494	0.09%	(45)
41.	Five Year Treasury Note, NYCE	383,613	0.17%			
42.	Corn, MIDAM	311,722	0.14%	406,694	0.22%	(41)
43.	Wheat, MGE	310,599	0.14%	283,900	0.15%	(43)
44.	Oats, CBOT	291,108	0.13%	140,952	0.08%	(47)
45.	Orange Juice (Frozen Conc.), NYCE	266,641	0.12%	211,543	0.11%	(44)
46.	Gold (100 oz.), CME	261,639	0.11%			
47.	Wheat, MIDAM	189,610	0.08%	344,749	0.19%	(42)
48.	Palladium, NYMEX	160,284	0.07%	145,562	0.08%	(46)
49.	Gold (Kilo), CBOT	159,627	0.07%	124,546	0.07%	(48)
50.	Cmdty Rsrch Bureau Index, NYFE	136,832	0.06%			
	Contracts with Volume Over 100,000 Contracts 1/			931,752	0.51%	
	Contracts with Volume Under 100,000 Contracts	779,481	0.34%	832,603	0.45%	
TOTAL		228,876,684	100.00%	184,354,496	100.00%	

1/ Contracts over 100,000 traded in 1986 but not over 100,000 in 1987.

COMMODITY FUTURES CONTRACTS TRADED 1983 - 1987

	CONTRACT UNIT	1987	1986	1985	1984	1983
Wheat	5,000 bu	1,929,306	2,090,316	2,127,962	2,974,886	3,886,914
Corn	5,000 bu	7,253,212	6,160,298	6,392,812	9,108,526	11,924,576
Oats	5,000 bu	291,108	140,952	99,024	155,110	359,825
Soybeans	5,000 bu	7,378,760	6,133,668	7,392,128	11,362,691	13,680,324
Soybean Oil	60,000 lb	3,912,417	3,182,963	3,647,408	4,009,548	3,858,558
Soybean Meal	100 tons	3,797,970	3,049,005	3,339,268	3,822,179	3,872,453
Plywood	76,032 sq.ft.				4,466	50,424
Silver	5,000 oz	12,092				21,470
Silver	1,000 oz	509,965	511,239	1,034,830	1,887,257	2,643,166
Gold	100 oz	24,893				4,133
Gold	Kilo	159,627	124,546	168,527	302 717	302,745
GNMA Mrtges, CDR	$100,000	7,583	24,078	84,396	862,450	1,692,017
GNMA II	$100,000				37,615	
Cash Settle GNMA	$100,000		7,351			
T-Bonds	$100,000	66,841,474	52,598,811	40,448,357	29,963,280	19,550,535
T-Notes (2-year)	$100,000					562
T-Notes (6 1/2-10 yr)	$100,000	5,253,791	4,426,476	2,860,432	1,661,862	814,505
Corporate Bond Index	$1,000 x Index	10,591				
Unleaded Reg. Gasoline	1,000 bbl					51,573
Crude Oil	1,000 bbl				628	94,591
Heating Oil	1,000 bbl					3,152
Institutional Index	$500 x Index	175				
Municipal Bond Index	$1,000 x Index	1,613,107	906,980	334,691		
Major Market Index	$100 x Index		36,292	2,062,083	1,514,737	
MMI Maxi	$250 x Index	2,630,887	1,738,916	422,091		
NASDAQ-100	$250 x Index		3,743	139,888		
CHICAGO BOARD OF TRADE		101,626,958	81,135,634	70,553,897	67,667,952	62,811,523
Live Hogs	30,000#	2,040,478	1,936,864	1,719,861	2,169,030	2,790,746
Pork Bellies, Fzn.	38,000 lb	1,097,010	1,100,339	1,457,386	1,908,045	2,403,277
Live Cattle	40,000#	5,229,294	4,690,538	4,437,327	3,553,270	4,248,152
Feeder Cattle	42,000 lb	645,877	411,441	455,881	316,985	537,173
Lumber	130,000 bd.ft.	437,089	502,530	581,548	753,568	731,003
Gold	100 oz	261,639		7	8,841	994,132
Leaded Regular Gas	1,000 barrels				4,045	
No. 2 Fuel Oil	1,000 barrels				4,601	
T-Bills (90-day)	$1,000,000	1,927,006	1,815,162	2,413,338	3,292,817	3,789,864
Domestic CD (90-day)	$1,000,000	98	3,062	84,106	928,662	1,079,580
Eurodollar (3-month)	$1,000,000	20,416,216	10,824,914	8,900,528	4,192,952	891,066
European Currency Unit	125,000	300	43,826			
British Pound	25,000	2,592,177	2,701,330	2,799,024	1,444,492	1,614,993
Canadian Dollar	100,000	914,563	734,071	468,996	345,875	558,741
Deutsche Mark	125,000	6,037,048	6,582,145	6,449,384	5,508,308	2,423,508
Japanese Yen	12,500,000	5,358,556	3,969,777	2,415,094	2,334,764	3,442,262
Mexican Peso	1,000,000			12,737	15,364	40,308
Swiss Franc	125,000	5,268,276	4,998,430	4,758,159	4,129,881	3,766,130
Australian Dollar	100,000	53,335				
Dutch Guilder	125,000					162
French Franc	250,000	10,437	2,685	9,335	8,388	26,348
S&P 500 Index	$500 x Index	19,044,673	19,505,273	15,055,955	12,363,592	8,101,697
S&P 100 Index	$200 x Index		3,514	1,662	166,202	390,902
S&P OTC 250	$500 x Index		5,270	94,919		
CHICAGO MERCANTILE EX.		71,334,072	59,831,171	52,115,247	43,449,682	37,830,044

	CONTRACT UNIT	1987	1986	1985	1984	1983
Rice, Milled	120,000 lb					275
Rice, Rough Old	200,000 lb			9	2,978	11,964
Rice, Rough New		31,114	3,095			
Cotton	50,000 lb					1,004
Cotton Short Staple	50,000 lb		3	1,751		
Soybeans	5,000 bu					197
Corn	5,000 bu					102
CHIC. RICE & COTTON EX.		31,114	3,098	1,760	2,978	13,542
Coffee "C"	37,500 lb	964,586	1,073,142	650,768	499,133	427,441
Sugar #11	112,000 lb	3,853,499	3,583,814	3,012,929	2,449,549	3,201,968
Sugar #12	112,000 lb		19,058	99,851	109,448	84,120
Sugar #14	112,000 lb	69,928	72,526	17,433		
White Sugar	50 M tons	903				
Cocoa	10 M tons	895,465	777,765	800,573	1,127,752	1,162,540
CPI-W	$1,000 x Index	2	8,776	1,324		
COFFEE SUGAR & COCOA		5,784,383	5,535,081	4,582,878	4,185,882	4,876,069
Copper	25,000 lb	2,569,178	1,872,209	2,444,552	2,506,365	3,186,914
Silver	5,000 oz	5,055,652	3,849,687	4,821,206	6,742,508	6,432,982
Gold	100 oz	10,239,805	8,400,175	7,773,834	9,115,504	10,382,805
Aluminum	40,000 lb	8,500	52,627	77,063	82,661	11,896
Moody's Index		11,482				
COMMODITY EXCHANGE		17,884,617	14,174,698	15,116,655	18,447,038	20,014,597
Wheat (5,000 bu)	5,000 bu	971,095	744,023	735,447	956,668	942,971
Value Line Index	$500 x Index	505,551	953,985	1,204,659	910,956	724,979
Mini Value Line	$100 x Index	28,457	18,678	19,032	30,179	25,092
KANSAS CITY BD. OF TRD.		1,505,103	1,716,686	1,959,138	1,897,803	1,693,042
Wheat	1,000 bu	189,610	344,749	347,355	404,508	334,413
Corn	1,000 bu	311,722	406,694	456,661	604,992	629,678
Oats	1,000 bu	6,958	2,169	1,746	7,067	11,797
Soybeans	1,000 bu	417,620	680,156	843,231	1,301,916	1,171,294
Soybean Meal Old	20 tons	17	3,231	10,981		
Soybean Meal New		3,191	2,256			
Live Cattle	20,000#	44,112	58,752	64,510	81,112	88,349
Live Hogs	15,000#	44,364	80,818	74,388	112,877	108,069
Refined Sugar	40,000 lb				24	1,306
Silver	1,000 oz		649	4,510	19,497	96,611
New York Silver	1,000 oz	9,578	9,342	57,886	12,611	30,833
Gold	33.2 oz		0	76	41,690	349,044
New York Gold	33.2 oz	17,957	21,111	31,467	19,285	
Platinum	25 oz	4,342	5,944	1,368	213	
Copper	12,500 lbs	2	892	4,043	492	
Copper New		29	1,753			
T-Bonds	$50,000	1,015,454	467,639	297,033	251,300	267,259
T-Bills	$500,000	25,592	34,690	36,904	30,486	37,755
British Pound	12,500	10,979	17,270	21,239	8,901	884
Swiss Franc	62,500	97,571	102,019	110,047	99,385	19,632
Deutschemark	62,500	85,009	74,662	85,439	67,507	6,607
Japanese Yen	6,250,000	58,836	47,601	32,912	34,677	10,835
Canadian Dollar	$50,000	7,749	6,150	3,370	3,315	171
MIDAMERICA COMMODITY EX.		2,350,692	2,368,547	2,485,166	3,101,855	3,166,537

	CONTRACT UNIT	1987	1986	1985	1984	1983
Wheat	5,000 bu	310,599	283,900	297,509	338,487	379,603
White Wheat	5,000 bu	1,415	686	3,402	2,245	
High Fructose Corn Syrup	48,000 lb	5,963				
Sunflower Seeds	100,000 lb					4
MINNEAPOLIS GRAIN EX.		317,977	284,586	300,911	340,732	379,607
Cotton #2	50,000 lb	1,395,980	1,015,392	636,492	1,137,141	1,550,117
Orange Jce, Fzn. Conc.	15,000 lb	266,641	211,543	190,758	317,364	124,267
Propane	100,000 gal	5,799	11,966	13,724	22,005	28,721
European Currency Unit	100,000	42,198	72,195			
Five Year Treasury Note	100,000	383,613				
Dollar Index	$500 x Index	403,783	166,494	74,573		
NY COTTON EXCHANGE		2,498,014	1,477,590	915,547	1,476,510	1,703,105
T-Bonds	$100,000					18
NYSE Composite Index	$500 x Index	2,915,915	3,123,668	2,833,614	3,456,798	3,506,439
NYSE Financial Index	$1,000 x Index					3,828
Russell 2000	$500 x Index	5,644				
Russell 3000	$500 x Index	10,734				
Cmdty Rsrch Bureau Index	$500 x Index	136,832	59,324			
NEW YORK FUTURES EX.		3,069,125	3,182,992	2,833,614	3,456,798	3,510,285
Palladium	100 oz	160,284	145,562	133,223	159,019	241,224
Platinum	50 oz	1,361,546	1,624,635	693,256	571,127	1,053,282
Potatoes	50,000 lb					17,115
Potatoes(Cash Settlement)	100,000 lb	6,240	16,558	16,903	26,595	16,650
No. 2 Heating Oil, NY	1,000 bbl	4,293,395	3,275,044	2,207,733	2,091,546	1,868,322
Leaded Reg. Gasoline, NY	1,000 bbl		829,733	667,172	653,630	406,843
Unleaded Gasoline, NY	1,000 bbl	2,056,238	439,352	132,611	2,736	
Propane	42,000 gal	15,312				
Crude Oil	1,000 bbl	14,581,614	8,313,529	3,980,867	1,840,342	323,153
NEW YORK MERCANTILE EX.		22,474,629	14,644,413	7,831,765	5,344,995	3,926,589
TOTAL FUTURES		228,876,684	184,354,496	158,696,578	149,372,225	139,924,940
PERCENT CHANGE		24.15%	16.17%	6.24%	6.75%	24.65%

OPTIONS VOLUME HIGHLIGHTS

1987 IN COMPARISON WITH 1986

		1987		1986		
RANK	EXCHANGE	CONTRACTS	%	CONTRACTS	%	RANK
1.	Chicago Board of Trade	25,466,032	55.14%	19,678,199	61.94%	(1)
2.	Chicago Mercantile Exchange	13,033,142	28.22%	8,944,353	28.15%	(2)
3.	Commodity Exchange	3,610,981	7.82%	2,353,717	7.41%	(3)
4.	New York Mercantile Exchange	3,260,642	7.06%	135,266	0.43%	(6)
5.	Coffee Sugar & Cocoa Exchange	472,476	1.02%	260,809	0.82%	(5)
6.	New York Futures Exchange	206,631	0.45%	296,303	0.93%	(4)
7.	New York Cotton & Citrus Exchange	88,703	0.19%	64,059	0.20%	(7)
8.	Kansas City Board of Trade	33,228	0.07%	18,302	0.06%	(8)
9.	MidAmerica Commodity Exchange	12,921	0.03%	14,218	0.04%	(9)
10.	Minneapolis Grain Exchange	1,229	.00%	3,259	0.01%	(10)
	Amex Commodities Corp	0	0.00%	2,128	0.01%	(11)
	TOTAL	46,185,985	100.00%	31,770,613	100.00%	

OPTIONS CONTRACTS TRADED 1983 1987

OPTION	CONTRACT UNIT	1987	1986	1985	1984	1983
Corn	5,000 bu	661,519	575,634	363,549		
Soybeans	5,000 bu	1,242,072	775,139	840,786	72,969	
Wheat	5,000 bu	124,598	9,314			
Silver	1,000 oz	10,009	3,081	10,820		
T-Bonds	$100,000	21,720,402	17,314,349	11,901,116	6,636,209	1,664,921
T-Notes	$100,000	1,421,852	1,000,682	177,292		
Muni Bonds	$1,000 x Index	118,632				
Soybean Oil	60,000 lbs	85,735				
Soybean Meal	100 tons	81,213				
CHICAGO BOARD OF TRADE		25,466,032	19,678,199	13,293,563	6,709,178	1,664,921
Live Hogs	30,000#	147,859	105,516	57,042		
Live Cattle	40,000 #	1,222,397	718,099	326,724	20,722	
Pork Bellies	38,000 lbs	15,112	1,981			
Feeder Cattle	42,000 lbs	134,830				
Lumber	130,000 bd.-ft.	6,483				
Eurodollar	$1,000,000	2,569,957	1,757,426	743,080		
British Pound	25,000	569,062	496,591	329,071		
Deutsche Mark	125,000	3,125,687	2,205,579	1,562,438	727,634	
Swiss Franc	125,000	1,053,323	817,897	324,806		
Japanese Yen	12,500,000	2,250,813	864,586			
Canadian Dollar	100,000	48,690	26,465			
T-Bill	$1,000,000	11,634	63,768			
S&P 500	$500 x Index	1,877,295	1,886,445	1,090,068	672,884	281,090
CHICAGO MERCANTILE EXCH		13,033,142	8,944,353	4,433,229	1,421,240	281,090
Sugar	112,000 lbs	432,927	254,491	91,400	11,960	7,583
Coffee	37,500 lbs	25,639	5,319			
Cocoa	10 M tons	13,910	999			
COFFEE SUGAR & COCOA EXCH		472,476	260,809	91,400	11,960	7,583
Gold	100 oz	2,080,067	1,646,791	1,395,896	1,432,514	386,501
Silver	5,000 oz	918,064	579,425	531,315	99,843	
Copper	25,000 lbs	612,850	127,501			
COMMODITY EXCHANGE		3,610,981	2,353,717	1,927,211	1,532,357	386,501
Wheat	5,000 bu	33,228	18,302	16,856	878	
Value Line Index	$500 x Index					168
KANSAS CITY BOARD OF TRADE		33,228	18,302	16,856	878	168
Soybeans	1,000 bu	12,317	6,635	8,790		
Soft Red Winter Wheat	5,000 bu	530	7,492	6,076	2,149	
Gold	33.2 oz	74	91	678	318	
MIDAMERICA COMMODITY EXCH		12,921	14,218	15,544	2,467	0
Spring Wheat	5,000 bu	1,229	3,259	5,414	624	
MINNEAPOLIS GRAIN EXCHANGE		1,229	3,259	5,414	624	0
Cotton	50,000 lbs	73,480	60,507	29,218	3,078	
Citrus	15,000 lbs	685	3,354	435		
Dollar Index	$500 x Index	14,538	198			
NEW YORK COTTON EXCHANGE		88,703	64,059	29,653	3,078	0
NYSE Composite Index	$500 x Index	206,631	296,303	195,634	246,359	306,602
NEW YORK FUTURES EXCHANGE		206,631	296,303	195,634	246,359	306,602
Heating Oil	42,000 gal	143,605				
Crude Oil	1,000 bbl	3,117,037	135,266			
NEW YORK MERCANTILE EXCHANGE		3,260,642	135,266	0	0	0
TOTAL OPTIONS		46,185,985	31,770,613	20,044,744	9,928,141	2,646,865
PERCENT CHANGE		45.37%	58.50%	101.90%	275.09%	1392.45%

SOURCE: FUTURES INDUSTRY ASSOCIATION

Alcohol

Salient Statistics of Alcohol in the United States In Millions of Gallons[3]

	Ethyl Alcohol & Spirits		Denatured Alcohol[2]				
				Consumption			
Year	Production[5]	Stocks Dec. 31	Production	Total	For Fuel Use	Stocks Dec. 31	Production of Methanol (Synthetic)
1976	498.8	85.3	225.3	225.6	—	3.2	940.1
1977	498.3	71.4	223.8	224.6	—	2.6	971.8
1978	506.7	71.2	227.7	228.8	—	2.7	970.4
1979	570.3	53.6	260.7	260.9	—	4.1	1,109.5
1980	643.2	72.0	301.2	281.5	14.5	10.1	1,077.3
1981	571.2	83.3	230.7	227.1	5.7	5.4	1,291.7
1982	601.1	95.0	284.9	277.9	41.9	6.6	1,137.7
1983	698.5	78.6	354.4	356.7	65.8	6.6	1,202.1
1984	631.3	132.5	416.9	410.5	116.7	24.5	1,232.8
1985	681.0	46.9	512.2	513.8	222.9	26.5	753.5
1986[1]	644.9	47.5	409.4	444.5	226.7	23.8	1,102.8
1987[4]	705	47	420	460	208	10	1,040

[1] Preliminary. [2] At denaturing plants. [3] Ethyl alcohol in proof gallons; denatured alcohol in wine gallons. [4] Estimate. [5] Represents alcohol and spirits of 190° of proof and over. *Source: Alcohol and Tobacco Division*

T.1

U.S. Production of Ethyl Alcohol[1] & Spirits In Millions of Tax Gallons[2]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1974	49.9	49.9	45.3	55.5	52.8	40.8	45.3	52.4	59.5	61.0	48.6	54.8	618.2
1975	52.0	40.4	44.5	41.4	39.8	39.1	41.3	40.1	39.6	53.8	46.4	48.0	526.4
1976	41.6	36.2	44.0	39.3	36.0	37.0	45.5	46.0	43.3	39.3	42.8	47.7	498.8
1977	36.5	37.7	42.8	39.2	43.5	43.2	40.3	40.9	41.0	44.7	48.9	39.7	498.3
1978	35.8	41.1	50.4	42.2	31.3	48.7	42.5	45.4	50.5	40.3	38.0	40.7	506.7
1979	42.8	41.3	49.3	47.3	42.9	48.2	43.8	46.0	53.7	49.4	51.0	54.6	570.3
1980	57.4	52.7	55.3	55.2	54.2	45.7	52.8	46.4	57.3	64.6	47.9	53.7	643.2
1981	49.2	44.3	49.3	51.0	44.0	42.2	45.1	55.8	53.1	44.0	47.8	45.4	571.2
1982	42.9	39.8	48.2	37.6	41.9	52.6	51.9	44.3	53.3	61.9	61.7	65.0	601.1
1983	60.9	58.6	59.4	46.1	56.6	60.2	63.8	56.9	59.2	55.6	53.9	47.2	698.5
1984	49.3	45.9	54.1	58.2	50.9	49.7	48.4	48.3	51.8	60.5	50.4	63.7	631.2
1985	64.1	45.0	60.5	55.6	56.2	63.6	58.4	55.4	59.4	64.1	51.8	47.1	681.0
1986[3]	45.6	51.5	56.5	52.5	55.6	50.1	48.9	50.2	56.7	62.2	54.2	60.8	644.9
1987[3]	62.2	54.9	55.8	60.2	62.0	56.6	60.1						

[1] At industrial alcohol plants. [2] A "tax gallon" is the alcoholic equivalent of a U.S. gallon at 60 degrees Fahrenheit, containing 50% of ethyl alcohol by volume. [3] Preliminary. *Source: Internal Revenue Service*

T.3

Average Wholesale Price Index of Ethyl Alcohol, in N.Y. Dec. 1973 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1974	113.1	115.4	123.6	129.9	133.0	148.9	152.5	154.2	167.5	180.9	189.4	193.9	150.2
1975	201.6	206.3	219.2	219.2	217.8	218.0	216.8	214.6	215.8	217.1	218.2	216.6	215.1
1976	217.2	230.2	233.0	233.6	233.0	233.0	233.0	232.5	233.0	233.0	232.3	233.0	231.4
1977	231.6	233.0	232.3	232.3	232.3	233.0	238.8	244.9	243.6	243.1	242.5	243.9	237.6
1978	243.9	231.0	230.3	226.4	226.4	225.8	226.4	226.6	226.4	218.8	226.4	226.5	227.9
1979	234.8	239.2	239.2	243.6	248.1	249.4	260.1	265.4	277.6	284.3	291.5	292.2	260.5
1980	311.7	319.6	325.0	338.4	361.4	369.4	370.3	369.2	369.2	369.3	369.2	369.2	353.9
1981	369.2	369.2	370.3	370.3	368.5	368.5	387.3	387.3	387.3	396.8	392.0	383.3	379.2
1982	382.2	353.5	349.6	346.4	N.A.	338.7	341.1	345.2	336.6	335.5	335.9	N.A.	346.5
1983	336.4	335.2	334.4	333.3	333.2	333.2	337.2	337.1	337.0	337.0	340.4	340.4	336.2
1984	341.1	340.5	340.5	339.7	339.9	340.0	346.9	344.0	341.7	341.0	342.4	342.4	341.7
1985	339.3	334.2	326.2	326.0	326.0	326.0	325.7	328.1	327.3	324.6	325.3	324.9	327.8
1986	323.8	261.5	317.3	316.6	316.3	315.7	315.3	313.5	313.7	312.0	311.9	311.6	310.8
1987	311.0	309.4	310.2	307.2	307.4	309.1	N.A.	310.6	302.2	315.3			

Source: Bureau of Labor Statistics (0614-0341)

T.2

Aluminum

Reeling from increased operating costs and declining consumption, primary aluminum producers and refiners in the U.S. lined up and closed their doors during the past decade. But the wringing out of excess capacity had little immediate impact, since stocks were at excessive levels. However, after numerous plant closings over the decade (by early 1987 only 21 refineries, owned by 11 companies, were left, with just three accounting for 63 percent of total production), a stock drawdown began to occur, and there were three successive years of production/consumption deficits amounting to 450,000 tonnes.

This inventory workdown hit bone in early 1987, which may have seen the last of the industry's shutdowns. According to market analysts, demand increased, partly in the U.S. and Japan where strike fears, some of which proved correct, encouraged hoarding.

Consumption in the U.S. for the first nine months of 1987 was 1.543 million tonnes, for an annualized total of 2.056 million tonnes. In 1986, the full-year total was 1.986 million tonnes. Recovery in the first nine months of 1987 was 1.395 million tonnes, or an annualized 1.860 million tonnes. This compares with the 1986 full-year total of 1.773 million tonnes.

Aluminum consumption is centered in the east-central U.S. Recent U.S. Bureau of Mines statistics indicate that 38 percent of domestic consumption comes from the packaging industry, with transportation accounting for 21 percent, and building for another 16 percent. The agency estimates that from a 1983 base, apparent U.S. demand for the metal will rise at an average annual rate of 4.6 percent through 1990.

According to the U.S. Bureau of Mines, the average daily rate of aluminum production started to increase in September 1986 and continued through September 1987, which was all the data available for analysis. At the same time, inventories of aluminum continued to show declines through September 1987. Measured in terms of months of supply, inventories have decreased from 56.1 months in January 1987 to 4.0 months in September 1987. For 1987, the world supply/demand deficit is forecast at around 370,000 tonnes.

World-wide production in 1987 is expected to reach 12.85 million tonnes, and aluminum metal dealers and merchants are projecting 1988 output at 13.45 million tonnes. The U.S. is the largest producer with an estimated 21 percent of the total, followed by the Soviet Union with 14 percent and Canada with nine percent.

Production increases have exclusively occurred in countries with inexpensive water power to devote to the mining process. Canada, Venezuela, Australia, and Brazil have been prominent among those nations with growing aluminum industries.

Futures Markets

Aluminum futures are traded on the New York Commodity Exchange (COMEX) and the London Metal Exchange.

World Production of Primary Aluminum In Thousands of Metric[3] Tons

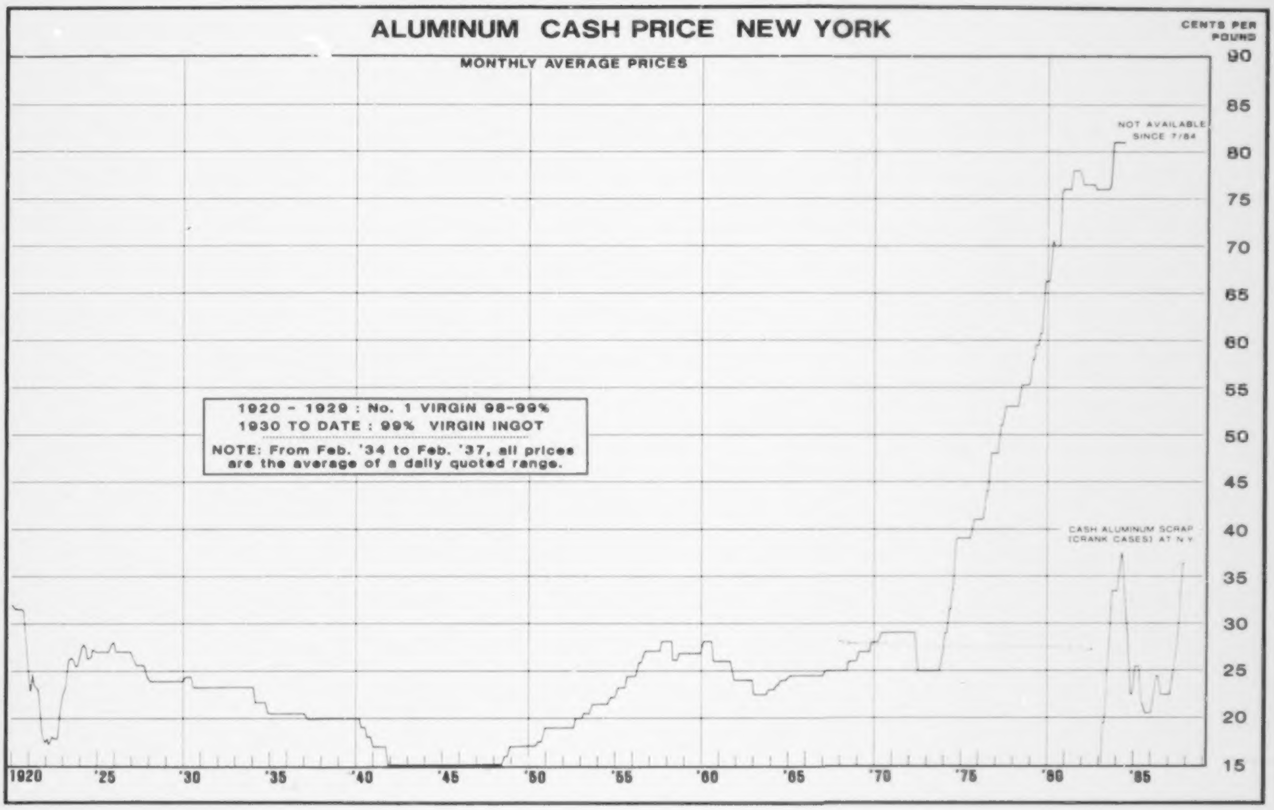
Year	Australia	Austria	Canada	China	France	West Germany	Hungary	Italy	Japan	Norway	Spain	Switzerland	Brazil	United Kingdom	United States	USSR	World Total
1977	273	101	1,073	385	440	818	79	287	1,310	686	233	88	184	386	4,539	1,810	15,189
1978	290	101	1,156	400	431	816	79	298	1,166	704	234	88	205	382	4,804	1,840	15,578
1979	297	102	904	400	436	817	79	297	1,114	732	286	91	263	396	5,023	1,930	16,044
1980[3]	303	94	1,068	360	432	731	73	271	1,091	653	386	86	261	374	4,654	1,760	15,383
1981	379	94	1.116	350	436	729	74	274	771	634	397	82	256	339	4,489	1,800	15,079
1982	381	94	1,065	380	390	723	74	233	351	638	367	75	299	241	3,274	1,900	13,433
1983	478	94	1,091	400	361	743	74	196	256	713	358	76	401	252	3,353	2,000	13,908
1984	758	96	1,227	400	342	777	74	230	287	765	381	79	455	288	4,099	2,100	15,707
1985[1]	851	94	1,282	410	293	745	74	221	227	712	370	73	550	275	3,500	2,200	15,351
1986[2]	882	94	1,360	410	310	765	74	243	140	712	375	65	762	270	3,037	2,300	15,314

[1] Preliminary. [2] Estimate. [3] Data prior to 1980 are in thousands of short tons. *Source: Bureau of Mines* T.4

U.S. Production of Primary Aluminum (Domestic & Foreign Ores) In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total[1]
1982	318	282	305	289	291	272	269	260	246	249	241	249	3,274
1983	253	223	248	245	265	261	284	297	299	320	318	340	3,353
1984[2]	342	324	350	348	365	351	349	344	329	338	325	334	4,099
1985[2]	329	289	312	295	304	288	292	289	280	285	265	271	3,499
1986[2]	273	251	281	275	284	241	231	230	231	243	239	252	3,036
1987[2]	262	238	266	263	271	272	282	286					

[1] Final annual totals. [2] Preliminary. *Source: Bureau of Mines* T.9



Salient Statistics of Aluminum in the U.S. In Thousands of Metric[8] Tons

Year	Net Import Reliance as a % of Apparent Consumption	Production		Primary Shipments[1]	Recovery from Scrap		Apparent Consumption	Net Shipments[5] by Producers								
													Castings			
		Primary	Secondary		Old	New		Plate, Sheet, Foil	Rolled Structural Shapes[2]	Extruded Shapes[3]	All	Permanent Mold	Die	Sand	All	Total All Net Shipments
1980[8]	[7]	4,654	1,260	5,515	617	960	4,595	3,346	606	1,165	5,242	193	443	121	769	6,011
1981	[7]	4,489	1,394	5,644	758	1,031	4,614	3,097	472	1,079	4,689	132	524	108	826	5,515
1982	7	3,274	1,466	5,090	782	884	4,370	2,749	391	871	4,094	108	480	81	728	4,823
1983	17	3,353	1,564	5,857	820	953	5,035	3,249	423	1,038	4,798	137	592	76	861	5,659
1984	7	4,099	1,760	6,552	825	935	5,279	3,259	451	1,182	5,003	161	679	90	990	5,994
1985	16	3,500	1,762	6,382	850	912	5,174	3,291	357	1,267	5,031	168	698	93	1,011	6,042
1986[4]	26	3,037	1,773	6,543	784	989	5,143	3,397	337	1,335	5,179	155	749	77	1,032	6,211
1987[6]		3,200	1,750		800		5,250									

[1] To Domestic Industry. [2] Also rod, bar & wire. [3] Also rod, bar, tube, blooms & tubing. [4] Preliminary. [5] Consists of total shipments less shipments to other mills for further fabrication. [6] Estimate. [7] Net exports. [8] Data prior to 1980 are in thousands of short tons.

Source: U.S. Bureau of Mines

T.8

U.S. Supply and Distribution of Aluminum In Thousands of Metric Tons

Year	Apparent Consumption	Production		Imports	Exports	Inventories (Dec. 31)	
		Primary	From Old Scrap			Private	Government
1981	4,615	4,489	758	848	787	2,996	2
1982	4,370	3,274	782	878	748	2,812	2
1983	5,035	3,353	820	1,091	776	2,265	2
1984	5,279	4,099	825	1,477	734	2,653	2
1985	5,174	3,500	850	1,420	908	2,343	2
1986[1]	5,143	3,037	805	1,967	753	2,240	2
1987[2]	5,250	3,200	900	1,900	800	2,050	2
1988							

[1] Preliminary [2] Estimate *Source: U.S. Bureau of Mines*

T.8A

ALUMINUM

High, Low & Closing Prices of December Aluminum Futures in New York In Cents Per Pound

Year of Delivery		Yr. Prior to Delivery Nov.	Yr. Prior to Delivery Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Life of Delivery Range
1986	High	49.50	57.15	59.35	58.60	61.75	61.75	58.10	55.55	54.00	53.25	54.90	52.90	50.65	50.70	61.75
	Low	46.30	48.80	54.60	54.90	57.55	54.05	52.65	52.75	51.00	51.60	52.15	49.60	48.05	48.50	46.15
	Close	48.90	55.50	56.20	57.90	58.50	54.05	54.50	53.60	52.60	52.60	52.50	50.15	48.70	50.70	—
1987	High	51.90	52.00	54.20	58.00	58.20	62.00	67.00	70.90	77.10	80.00	84.00	86.00	81.00	89.00	89.00
	Low	50.45	50.45	52.00	53.95	55.60	57.15	61.80	65.00	68.50	74.00	72.50	75.50	76.00	77.50	50.45
	Close	50.75	52.00	53.80	57.25	57.15	62.00	66.20	68.45	77.10	75.50	82.50	79.75	77.00	88.00	—
1988	High	74.25	80.00													
	Low	68.10	71.50													
	Close	70.15	79.00													

Source: Commodity Exchange, Inc. (Comex)—N.Y. T.11A

Month-End Open Interest of Aluminum Futures at New York In Contracts

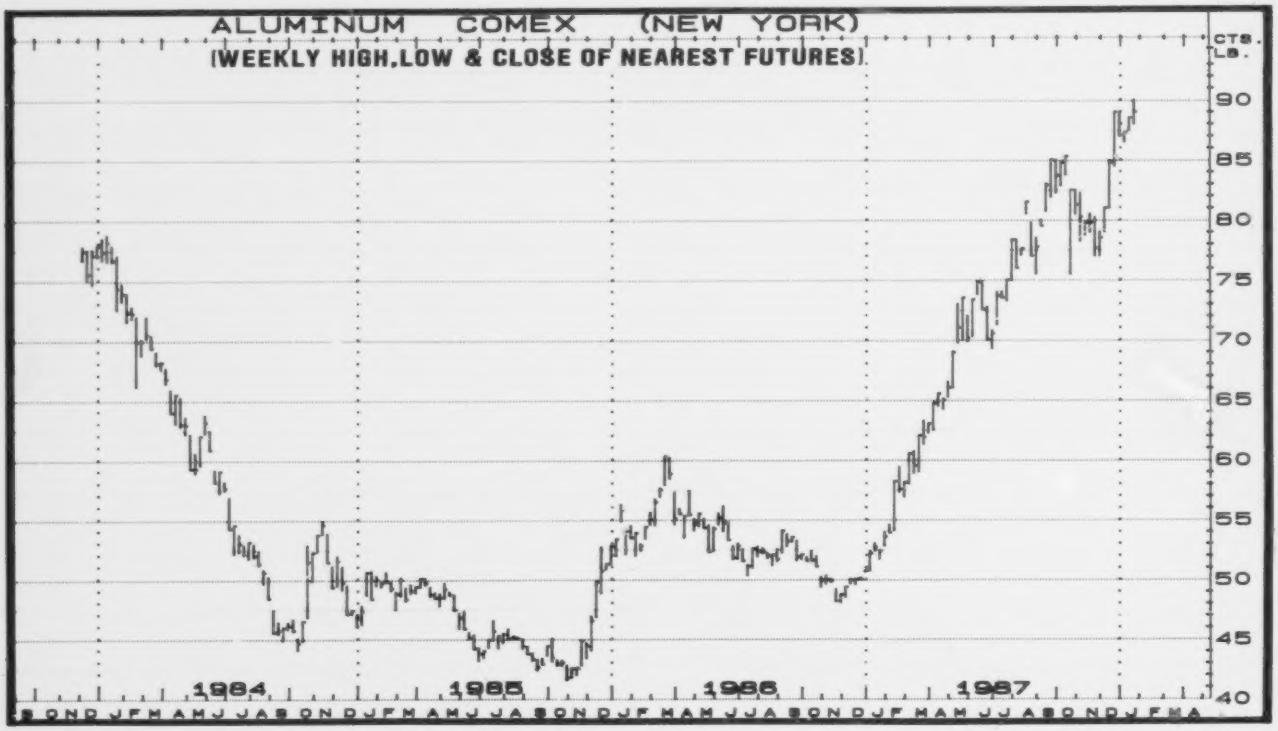
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1985	4,102	3,727	2,710	2,460	2,264	1,803	1,686	1,507	1,749	1,873	1,687	2,044
1986	2,386	2,179	2,476	1,717	1,444	1,098	1,215	869	854	948	781	977
1987	828	722	985	883	754	661	542	521	554	441	394	270

Source: Commodity Exchange, Inc. (Comex)—N.Y. T.11B

Volume of Trading of Aluminum Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	10,788	9,222	4,935	7,353	4,935	6,609	4,159	9,052	3,342	3,166	6,934	6,568	77,063
1986	8,409	9,600	7,982	8,572	3,250	4,475	2,218	2,855	1,600	1,104	1,699	863	52,627
1987	1,688	1,688	1,431	640	895	745	408	390	527	319	268	222	8,500

Source: Commodity Exchange, Inc. (Comex)—N.Y. T.11C



Average Price of Scrap Aluminum Clippings in N.Y. In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1986	25.59	27.50	29.69	30.86	29.50	28.93	28.50	28.50	28.50	28.50	28.50	28.50	28.59
1987	28.50	28.50	31.23	34.50	36.15	37.50	39.14	43.07	43.50	47.32	47.50	47.50	38.70

Source: American Metal Market

Average Price of Cast Aluminum Scrap (Crank Cases)[1] in New York In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	20.50	20.50	19.85	19.50	19.25	16.32	16.00	16.00	16.00	16.00	14.95	14.50	17.45
1983	15.12	17.50	19.50	19.50	23.50	25.50	27.65	31.80	33.50	33.50	33.50	33.50	26.17
1984	34.83	35.50	36.59	37.50	35.64	32.98	30.50	29.11	25.55	23.07	22.50	23.67	30.62
1985	25.50	25.50	25.50	25.50	23.23	21.50	21.40	20.50	20.50	20.50	20.50	22.55	22.55
1986	21.23	22.50	23.60	24.50	24.50	23.36	22.50	22.50	22.50	22.50	22.50	22.50	22.89
1987	22.50	22.50	24.18	25.50	26.75	27.50	29.14	33.07	33.50	36.36	36.50	36.50	29.50

[1] Dealers' buying prices. *Source: American Metal Market* T.12

Aluminum Products (Ingot & Mill Products) Shipments[1] in the U.S. In Million Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	862	946	1,074	1,014	972	1,127	881	1,114	1,016	980	959	1,099	12,039
1983	971	972	1,185	1,054	1,224	1,205	1,077	1,212	1,202	1,103	1,141	1,275	13,622
1984[2]	1,100	1,263	1,384	1,129	1,297	1,288	1,107	1,236	1,128	1,282	1,140	1,207	14,655
1985[2]	1,132	1,097	1,254	1,209	1,287	1,208	1,199	1,234	1,264	1,278	1,123	1,032	14,456
1986[2]	1,174	1,168	1,395	1,340	1,390	1,202	1,114	1,131	1,116	1,219	1,042	1,062	14,382
1987[2]	1,186	1,257	1,354	1,294	1,323	1,446	1,354	1,272					

[1] Mill products & pig & ingot (net shipments). [2] Preliminary. *Source: Bureau of the Census* T.10

U.S. Aluminum Inventories, Total (Ingot, Mill Prod. & Scrap) In Million Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1982	6,607	6,644	6,722	6,639	6,665	6,664	6,557	6,607	6,490	6,415	6,412	6,373
1983	6,180	6,140	6,075	5,870	5,723	5,558	5,418	5,451	5,353	5,236	5,273	5,191
1984[1]	4,994	5,200	5,225	5,295	5,435	5,579	5,618	5,775	5,794	5,881	5,889	5,922
1985[1]	5,850	5,759	5,678	5,657	5,600	5,712	5,595	5,579	5,512	5,439	5,324	5,241
1986[1]	5,165	5,161	5,158	5,054	5,197	5,044	5,044	5,083	5,057	4,977	4,927	4,902
1987[1]	4,928	4,868	4,784	4,702	4,591	4,515	4,475	4,393	4,325			

[1] Preliminary. *Source: Bureau of Mines* T.5

Aluminum Exports (Metal & Alloys, Crude) from the U.S. In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	22.1	18.8	46.0	26.6	19.9	48.5	24.2	42.6	23.6	59.5	42.1	27.3	401.2
1983	50.9	12.2	14.0	46.4	8.2	14.9	37.1	33.2	44.5	27.4	50.8	24.1	360.7
1984	24.5	20.1	19.9	7.6	23.4	24.0	22.1	37.5	23.9	17.9	32.9	32.3	286.2
1985	43.9	34.6	24.9	31.0	32.8	58.8	41.8	28.5	29.6	21.4	20.5	13.1	383.0
1986	24.1	28.1	20.0	14.1	18.7	12.6	12.1	17.2	18.0	21.2	19.1	23.5	228.6
1987	17.0	26.3	23.5	26.0	16.8	16.1	29.0	30.6	30.7				

Source: Bureau of the Census T.7

Aluminum General Imports (Metal & Alloys, Crude) into the U.S. In Thousands of Metric Tons[1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	38.5	65.9	61.7	61.0	51.0	66.5	42.2	78.2	52.8	52.7	60.1	47.8	679.4
1983	48.2	42.6	33.2	66.9	84.6	82.9	72.1	65.7	56.6	58.2	63.6	40.3	714.9
1984	70.9	94.9	114.3	68.8	108.8	73.9	66.8	68.0	89.9	93.0	68.6	57.4	975.3
1985	75.6	62.7	88.9	73.2	80.4	84.8	75.9	80.4	103.4	95.0	76.7	64.0	960.9
1986	90.5	110.9	140.9	144.4	167.3	137.0	131.2	136.1	106.1	118.3	100.4	85.2	1,468.4
1987	126.0	124.6	111.1	106.3	114.9	133.6	120.6	106.1	105.3				

[1] Data prior to 1983 are in thousands of short tons. *Source: Bureau of the Census* T.6

Antimony

Antimony compounds are used as stabilizers to retard heat and light degradation in plastics, and to flameproof plastics, textiles and other combustibles. The metal is also a decolorizing and refining agent in optical glass and other special glass products. Antimony-lead alloys are used in lead-acid storage batteries and where increased strength and corrosion resistance is desired.

Antimony is one of the contaminants for which the Environmental Protection Agency establishes maximum permissible levels in drinking water. Antimony and antimony trioxide are also taxed under the Superfund legislation at $4.45 and $3.75 per short ton, respectively. Beginning in January 1987, the tax was collected from producers and importers of the products; the tax is scheduled to terminate in 1991.

In April 1987, China suspended antimony sales after selling 3,000 tonnes; but in July, Chinese officials said they planned to resume antimony exports, putting pressure on world prices during third quarter 1987. China is the world's largest miner of antimony, with estimated 1986 output of 16,500 short tons of ore content. World mine production for 1986 was put at 66,020 short tons of metal content. World resources are estimated at 5.6 million short tons. U.S. ores are found in Idaho, Nevada, Alaska, and Montana.

In June 1987, the Administration proposed selling 1,500 short tons of antimony from the National Defense Stockpile in fiscal 1988; the stockpile goal was 36,000 tons, and the inventory then was 37,107 tons. Stockpile sales had been limited to 1,000 tons a year.

World Mine Production of Antimony (Content of Ore) In Short Tons

Year	Australia	Bolivia	Austria	China[1]	Czechoslovakia	Italy	Mexico[2]	Morocco	Peru[5]	Turkey	South Africa	United States	USSR	Yugoslavia[4]	World Total[1]
1984	1,267	10,231	577	16,500	1,100	269	3,377	1,071	741	1,121	8,201	557	10,300	1,050	60,309
1985[3]	1,650	9,838	526	16,500	1,100	546	4,702	830	655	1,210	8,150	N.A.	10,400	1,400	61,833
1986[1]	1,650	11,350	550	16,500	1,000	330	4,400	830	740	1,200	8,200	N.A.	10,500	1,300	66,020

[1] Estimate. [2] Includes antimony content of miscellaneous smelter products. [3] Preliminary. [4] Metal. [5] Recoverable.

Source: Bureau of Mines

T.13

Salient Statistics of Antimony in the United States In Short Tons

		Production				Imports[5]				Industry Stocks, Dec. 31[2]						
			Primary[2]			Ore										
Year	Net Import Reliance as a % of Apparent Consumption	Shipments of Mine	Mine	Smelter	Secondary (Alloys)[2]	Gross Weight	Sb Content	Metal Gross Weight	Exports[3]	Ores & Concentrates	Metallic	Oxide	Sulfide	Residues & Slag	Total[6]	Prod of Antimonial Lead[2]
1985	N.A.	N.A.	N.A.	16,449	15,030	14,381	6,638	5,129	362	1,164	807	3,954	16	99	6,040	N.A.
1986[1]	N.A.	N.A.	N.A.	17,978	15,029	10,833	5,855	7,940	595	1,030	956	4,019	19	106	6,130	N.A.
1987[4]				15,200	8,700		5,800	8,300	1,500	1,400	1,600	4,100	30	100	7,200	

[1] Preliminary. [2] Antimony content. [3] Antimony ore, metal & compounds. [4] Estimate. [5] Imports for consumption. [6] Including primary antimony residues & slag. *Source: Bureau of Mines*

T.15

Industrial Consumption of Primary Antimony in the United States In Short Tons (Antimony Content)

	Metal Products											Non-Metal Products				
Year	Ammunition	Antimonial Lead	Sheet & Pipe	Bearing Metal & Bearings	Cable Covering	Solder	Type Metal	Total All Metal Products	Flame Retardant	Ammun. primers	Ceramics & Glass	Rubber Pdt's.	Pigments	Plastics	Total	Grand Total
1985	410	568	N.A.	177	N.A.	336	31	1,638	7,530	27	1,187	25	147	998	2,529	11,697
1986[1]	N.A.	605	40	156	68	279	9	1,589	6,885	23	1,027	41	250	975	2,482	10,956
1987[2]		700		80		270		1,800	5,700	50	1,050		200	800	2,250	11,600

[1] Preliminary. [2] Estimated coverage based on 77% of the industry. *Source: Bureau of Mines*

T.16

Antimony Imported (for Consumption) into the U.S. and Price Ranges

	Imported for Consumption										
		Needle or Liquated Antimony		Antimony Metal		Antimony Oxide		¢ Lb.			
Year	Antimony Ore Value Ths. $	Gross Weight Sh. Tons	Value $ Ths.	Short Tons	Value $ Ths.	Short Tons	Value $ Ths.	Foreign Metal (Duty Paid Delivery New York)	Antimony Trioxide	Metal[2]	Domestic (Based on Antimony in Alloy)
1985	12,381	112	256	5,129	10,983	8,815	20,765	120–147	145–165	131.1	200
1986[1]	5,892	385	596	7,940	15,242	11,221	21,529	105–144	125–150	121.9	200
1987[3]		200		8,300		10,000				111.0	200

[1] Preliminary. [2] N.Y. Dealer Price, 99.5% to 99.6%, C.I.F. U.S. ports. [3] Estimate. *Source: Bureau of Mines*

T.17

Apples

World Production of Apples (Dessert & Cooking) In Thousands of Metric Tons

Crop Year	Mexico	Argentina	Australia	Spain	Belg-Lux.	Canada	France	West Germany	Italy	Japan	Netherlands	South Africa	United Kingdom	United States[2]	Yugoslavia	World Total
1975	230	608	368	1,091	268	460	2,125	2,035	2,127	989	430	341	338	3,415	370	16,910
1976	329	576	275	1,008	241	409	1,598	1,487	2,143	879	380	381	388	2,936	483	15,501
1977	297	820	301	672	120	411	1,186	1,176	1,828	959	315	289	234	3,057	381	13,934
1978	313	810	258	1,015	273	452	1,768	1,783	1,874	844	510	367	342	3,446	381	16,589
1979	338	972	345	1,097	322	435	1,769	1,951	2,023	853	450	372	334	3,694	428	16,605
1980	282	908	345	859	330	553	1,802	1,880	1,960	960	450	450	321	4,005	483	17,179
1981	280	804	294	1,008	134	422	1,502	773	1,773	846	260	486	227	3,517	508	14,099
1982	394	817	301	891	270	478	1,978	2,637	2,642	924	440	423	340	3,684	746	18,418
1983	302	872	267	1,012	203	485	1,575	1,313	2,056	1,048	364	513	293	3,800	557	16,156
1984	437	943	340	959	231	434	1,982	1,799	2,217	812	388	453	316	3,779	584	17,273
1985[1]	403	600	320	988	221	476	1,629	1,400	2,013	910	300	499	273	3,606	600	15,856
1986[3]														3,579		
1987[3]														4,361		

[1] Preliminary. [2] Commercial crop. [3] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.*

T.18

Salient Statistics of Apples[1] in the United States

Year	Production		Growers Prices		Utilization of Quantities Sold						Avg Farm Price ¢ Per Lb.	Farm Value Million $	Foreign Trade[4]			Fresh Per Capita Consumption Lbs.
						Processed[5]							Domestic Exports		Imports	
	Total	Utilized	Fresh ¢ Lb.	Processing $ Ton	Fresh	Canned	Dried	Frozen	Juice & Cider	Other[3]			Fresh	Dried[5]	Fresh & Dried[5]	
	Millions of Pounds												Metric Tons			
1975	7,530	7,103	8.80	56.80	4,357	1,027	230	207	1,192	91	6.50	460.9	102.3	3.7	57.8	19.3
1976	6,472	6,467	11.50	108.00	3,916	920	229	220	1,109	73	9.10	586.5	123.7	4.6	55.7	17.2
1977	6,740	6,710	13.80	122.00	3,860	1,076	226	161	1,267	121	10.60	708.6	142.4	8.2	63.6	17.0
1978	7,597	7,544	13.90	117.00	4,210	1,224	221	207	1,495	186	10.40	781.4	154.8	7.3	78.5	17.4
1979	8,126	8,101	15.40	114.00	4,289	1,337	256	137	1,954	130	10.90	881.2	237.3	5.5	71.2	17.6
1980	8,818	8,800	12.10	84.00	4,934	1,202	195	168	2,137	165	8.70	761.3	311.3	7.6	76.8	19.1
1981	7,740	7,693	15.40	102.00	4,442	1,002	190	173	1,798	87	11.10	851.1	269.2	8.3	128.3	16.8
1982	8,122	8,110	13.20	118.00	4,537	1,249	[illegible]	191	1,808	116	10.00	809.0	261.8	16.1	98.7	18.0
1983	8,379	8,358	14.80	103.00	4,621	1,204	283	170	1,985	95	10.50	879.3	228.7	12.0	126.0	18.4
1984	8,331	8,318	15.50	111.00	4,666	1,177	289	198	1,886	102	11.20	927.3	205.2	9.3	132.6	18.4
1985[2]	7,922	7,834	17.30	103.00	4,226	1,275	242	174	1,842	74	11.70	908.8	—152.8—		13.40	17.4
1986[2]	7,891	7,865	19.20	117.00	4,563	1,194	225	257	1,533	93	13.60	1,070	—168.3—			17.5
1987[2]	9,615															

[1] Commercial crop. [2] Preliminary. [3] Mostly crushed for vinegar, jam, etc. [4] Year beginning July. [5] Fresh weight basis.
Source: Statistical Reporting Service, U.S.D.A.

T.19

U.S. Price[1] of Apples Received by Growers (for Fresh Use) In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1976	7.217	8.437	8.250	8.750	7.752	8.070	N.A.	N.A.	N.A.	9.610	9.008	9.785	8.542
1977	N.A.	10.900	10.030	9.794	9.725	9.935	N.A.	N.A.	N.A.	9.960	9.000	8.020	9.417
1978	11.183	11.280	11.305	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	21.612	14.000	13.876
1979	13.500	14.000	14.000	14.500	13.500	13.750	N.A.	N.A.	N.A.	12.750	14.500	15.250	13.972
1980	15.750	15.667	16.750	16.750	16.750	19.000	N.A.	N.A.	N.A.	12.500	12.000	12.000	15.240
1981[1]	10.7	12.4	12.1	11.3	10.7	10.5	12.7	14.6	16.0	16.0	16.1	15.7	13.2
1982	14.1	15.7	16.0	14.5	16.2	17.7	15.2	16.4	16.4	14.6	13.9	13.1	15.3
1983	11.8	12.3	12.8	11.3	11.4	10.5	11.2	14.4	18.0	16.5	15.3	14.6	13.3
1984	14.4	15.2	15.3	15.0	15.1	14.7	18.6	18.3	20.7	18.4	17.3	17.8	16.7
1985	14.7	14.5	15.0	14.9	13.6	12.3	17.5	18.2	17.7	17.3	17.5	17.7	15.9
1986[2]	16.7	17.2	17.2	17.2	20.7	21.1	28.0	30.0	22.3	20.1	18.5	17.9	20.6
1987[2]	17.9	19.5	19.6	19.4	21.4	25.7	25.3	15.5	18.0	14.3			

[1] Prior to 1983, data are in dollar per tray ctn. of "Delicious" in the U.S. [2] Preliminary. *Source: Bureau of Labor Statistics (0111-02 5.99) Economic Res. Service, U.S.D.A.*

T.20

Arsenic

The sole U.S. refiner of arsenic ceased production in 1985, but world refined arsenic trioxide ouput has been more than adequate to supply U.S needs through imports, which totaled 23,000 tonnes in 1986. A firm in Georgia produces refined arsenic trioxide (white arsenic) from imported low-grade arsenic trioxide for use in wood preservatives. A North Carolina firm produces arsenic acid for similar uses from low-grade imports, and a firm in Wyoming makes small quantities of arsenic acid from domestic nonferrous arsenic-containing residues.

The lion's share of arsenic consumption is in the form of compounds used in agricultural chemicals and wood preservatives. Approximately 10 tonnes of high-purity arsenic metal was used by the electronics industry for the production of semiconductors, and metallic arsenic was also used in nonferrous metal alloying. But more than two-thirds of 1986 consumption was in wood preservatives, and about 25 percent more went into herbicides and desiccants.

Apparent arsenic demand in the U.S. rose to 25,700 tonnes in 1986 from 17,900 in 1985, largely because of increased demand for chromated copper arsenate (CCA) wood preservatives. The Environmental Protection Agency has banned the use of chlordane, which was used on termites, and that action should increase usage of alternative treatments that include arsenic. In new construction, concrete and steel can be substituted for pressure-treated wood, and creosote may be used on wood when odor and paintability are not problems.

While total 1986 usage matched 1981's record demand, agricultural use of arsenicals fell slightly from 1985 levels because of lower cotton acreage (the principal crop on which arsenical herbicides and desiccants are used). Paraquat and other synthetic organic compounds may be substituted for arsenic in some agricultural uses, but there are no available alternatives to arsenicals as growth regulators for grapefruit or for control of some grape diseases.

The EPA requires controls on arsenic emmissions from copper smelters and glass factories. World resources of copper and lead contain about 11 million tonnes of arsenic, and some gold ores, particularly in Canada, contain substantial amounts of arsenic.

World Production of White Arsenic (Arsenic Trioxide) In Metric[4] Tons

Year	Portugal	Bolivia	Belgium	Canada[5]	Chile	France	West Germany	USSR	Japan	Mexico	Peru	Rep. of Korea	Sweden	Namibia[3]	World Total
1976	306				—	8,023	400	8,200	66	6,062	879	1,028	7,411	5,646	38,021
1977	245				—	6,661	400	8,300	131	6,332	1,507	713	6,613	2,882	33,784
1978	279				—	6,500	400	8,400	100	6,884	1,457	604	6,700	2,647	33,971
1979[4]	345				—	5,550	—	7,700	182	6,537	1,415	590	5,080	2,221	29,620
1980	200	81			—	5,300	360	7,700	284	6,932	2,475	N.A.	6,500	1,288	31,199
1981	196	127	3,000	2,000	—	5,200	360	7,750	95	6,517	2,164	170	6,900	1,370	43,731
1982	200	261	3,000	2,000	—	6,000	360	7,800	100	4,740	1,910	306	9,000	1,895	45,572
1983	180	107	3,000	2,000	—	4,727	360	7,900	300	4,557	1,009	560	9,000	1,126	42,126
1984	180	144	3,000	3,000	3,500	3,828	360	8,000	500	5,496	1,090	N.A.	10,000	2,504	48,402
1985[1]	170	361	3,000	3,000	4,000	8,000	360	8,100	500	6,312	1,257	N.A.	10,000	2,471	54,731
1986[2]	150	200	3,000	3,000	6,000	10,000	360	8,100	500	6,000	1,210	N.A.	10,000	1,936	55,456

[1] Preliminary. [2] Estimate. [3] Output of Tsumeb Corp. Ltd. only. [4] Data prior to 1979 are in short tons. [5] Includes low-grade dusts that were exported to the U.S. for further refining. *Source: Bureau of Mines*

T.21

Salient Statistics of White Arsenic in the U.S. In Metric[5] Tons

	Imports For Consumption					Trioxide Mexican 99.13% As_2O_3	Value of Imports Thous.	Trioxide Domestic[4] 95% As_2O_3	Metal Domestic 99% As	Imports of Arsenic Trioxide from								Exports (compounds) Gross Weight
Year	Trioxide (As_2O_3)	Metallic Arsenic	Arsenic Acid	Sulfide	Arsenic Compounds	¢ lb.[3]	$	— ¢ lb. 12/31 —		Peru	Canada	France	Mexico	South Africa	Sweden	Bel-Lux	
1976	4,262	288			355	17	1,528	13.1	175	—	—	462	3,793	—	3		
1977	5,981	357	382	—	1,109	18	1,962	13.1	190	—	22	1,352	3,089	—	1,323		
1978	10,306	369	565	—	473	27	5,918	23¼	190	—	136	5,077	2,603	—	2,281	189	
1979	12,325	405	176	39	1	30	7,728	24¼	190	477	277	3,242	3,125	—	5,014	184	969
1980	12,528	266	271	11	1	46	9,190	31¾	300	—	486	2,780	3,720		4,770	388	1,518
1981[5]	17,199	294	1,511	—	4	78	17,742	40	275	50	5,581	749	3,566	17	4,902	1,251	523
1982	14,599	136	699	18	362	59	18,205	40	245	—	3,352	1,992	2,276	—	4,192	1,030	2,658
1983	10,186	243	2,385	1,127	26	45	13,920	33	225	—	2,525	667	2,531	17	3,430	946	85
1984	13,985	304	2,506	20	35	42	14,581	33	210	—	4,767	1,261	3,115	—	3,914	843	76
1985[1]	16,472	407	1,993	2	23	42	17,999	33	210	—	3,669	3,608	3,399	113	2,996	1,498	158
1986[1]	25,728	395	1,381	16	10	44	20,851	33	185	—	1,924	6,274	4,408	1,210	7,069	1,255	200

[1] Estimate. [2] Preliminary. [3] F.O.B. Laredo, TX. [4] F.O.B. Tacoma, Wash. [5] Data prior to 1981 are in short tons. *Source: Bureau of Mines*

T.22

Barley

World barley production in 1987/88 was projected at 186.5 million tonnes, 2 percent more than the previous season. The USSR was by far the largest producer, with a crop estimated at 62 million tonnes, 15 percent more than a year earlier. Soviet production was one-third of the world total. The European Community was also a leading producer, with 47.2 million tonnes, 1 percent more than the previous season. Canada's crop was 14 million tonnes, down 5 percent.

World exports of barley were placed at 18.1 million tonnes, near a year earlier. The EC was the major exporter with a market share of 39 percent. Canada was a large exporter with 27 percent of world trade. U.S. exports comprised about 18 percent. Saudi Arabia was the major importer, taking 30 percent of the world's traded barley. The USSR, the largest producer, was also an importer; it was expected to buy 2 million tonnes, with most of it from the EC. World barley use was pegged at 188 million tonnes, up 4 percent from the year before.

Global ending stocks of barley were expected to decline slightly to 29 million tonnes. The U.S. holds 23 percent of world stocks.

U.S. barley production in 1987/88 was 528 million bushels, down 15 percent from the previous year. Harvested area fell to 10 million acres from 12 million a year earlier. While acreage was smaller, yields responded to near-perfect weather and rose 2 percent to 51.7 bushels/acre. Carry-in stocks were 356 million bushels, 10 percent more than a year before. The total U.S. supply of barley in 1987/88 was estimated at 879 million bushels, 7 percent less than a year earlier.

With smaller availability, total U.S. disappearance was expected to decline slightly from the previous season. Feed use was estimated at 275 million bushels, about the same as a year earlier. Food, seed, and industrial offtake was put at 175 million bushels, again about the same as the previous year. The USDA projected barley exports at 125 million bushels, down 9 percent. Exports of barley were very strong the year before, with government subsidies helping sales. Saudi Arabia was by far the largest market, and in 1986/87 took 84 percent of U.S. exports. In 1987/88, Saudi Arabia was again expected to take the bulk, with Israel and Algeria other large markets.

U.S. ending stocks were projected at 304 million bushels, 15 percent less than a year earlier. Stocks were still far above earlier seasons. Between 1975 and 1983, barley stocks averaged 179 million bushels.

U.S. Government Program

The price support loan rate for barley in 1988 is $1.42 per bushel, while the target price is $2.55. In 1987, the loan rate was $1.49, and the target price was $2.60. To qualify for program benefits, producers must reduce base acreage by 20 percent. No paid land diversion had been announced as of this writing.

Futures Market

Feed barley futures are traded on the Winnipeg Commodity Exchange (WCE).

World Barley Supply and Demand In Millions of Metric Tons

	Exports						Imports			Utilization				Stocks[2]		
Crop Year	Australia	Canada	EC-12	Total Non-U.S.	U.S.	Total Exports	U.S.S.R.	Total Imports	Production	West Europe	Non-U.S.	U.S.	Total Utilization	Non-U.S.	U.S.	Total Stocks
1980–81	1.5	4.0	4.6	12.4	1.8	14.2	4.0	14.2	164.0	52.0	157.2	7.6	164.8	14.1	3.0	17.1
1981–82	1.7	5.5	3.5	12.0	2.0	14.1	3.6	14.1	157.0	48.3	149.1	8.1	157.2	13.7	3.2	17.0
1982–83	.6	6.1	3.9	12.5	1.0	13.4	2.2	13.4	166.9	49.5	152.6	8.9	161.5	15.6	4.7	20.3
1983–84	3.6	4.2	3.8	14.5	2.1	16.6	.5	16.6	164.7	49.1	160.7	9.8	170.5	10.5	4.1	14.6
1984–85	4.7	2.5	7.6	16.8	1.2	18.0	4.7	18.0	174.4	50.2	157.1	10.3	167.4	16.1	5.4	21.5
1985–86	3.7	4.8	7.3	17.5	.8	18.3	2.7	18.3	176.7	47.5	159.9	10.9	170.9	20.1	7.1	27.2
1986–87[1]	2.2	6.0	5.7	15.2	3.0	18.1	3.0	18.1	182.1	46.8	169.7	9.8	179.5	22.0	7.7	29.8
1987–88[3]	2.1	4.8	7.0	14.6	3.3	17.9	3.0	17.9	186.4	46.7	177.6	9.8	187.4	22.1	6.6	28.7

[1] Preliminary. [2] End of crop year season. [3] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.29A

World Production of Barley In Thousands of Metric Tons

Crop Years	China	United States	Australia	Canada	Rep. of Korea	Denmark	Morocco	France	India	Japan	USSR	West Germany	Spain	Turkey	United Kingdom	World Total
1980–1	7,600	7,859	2,682	11,259	859	6,044	2,210	11,758	1,624	375	43,400	8,826	8,705	5,300	10,326	164,000
1981–2	7,500	10,436	3,450	13,724	749	6,044	1,039	10,231	2,293	383	37,500	8,687	4,757	5,900	10,230	157,000
1982–3	7,000	11,233	1,939	13,966	749	6,357	2,334	10,036	1,993	390	41,000	9,460	5,269	6,400	10,954	166,900
1983–4	6,800	11,081	4,890	10,209	815	4,423	1,228	8,759	1,867	380	50,000	8,944	6,662	5,425	9,980	164,700
1984–5	7,300	13,046	5,554	10,296	804	6,072	1,405	11,699	1,834	396	41,800	10,284	10,000	6,000	11,055	174,400
1985–6[1]	6,200	12,900	4,868	12,443	571	5,752	2,225	11,470	1,542	378	46,500	9,690	9,980	5,800	9,600	176,700
1986–7[2]	6,100	13,300	3,585	14,634							53,900					182,100
1987–8[2]	7,000	11,300	3,320	14,382							62,000					186,400

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.23

BARLEY

U.S. Barley Acreage and Prices

Year Beginning June 1	Acreage (Million Acres)				Yield per Harvested Acre In Bushels	Seasonal Prices				Govt. Price Support Operations			
	National Program	Set-aside	Planted	Harvested for Grain		Received by Farmers[1]	Minneapolis[2] or Better Feed (No. 2)	Minneapolis[2] or Better Malting (No. 3)	Portland No. 2 Western	National Avg. Loan Rate	Target Price	Placed Under Loan (Mil. Bu.)	Total Payments to Participants[6] (Mil. $)
						Dollars per Bushel							
1978–9	7.5	.8	10.0	9.2	49.2	1.92	1.80	2.38	2.10	1.63	2.25	67.6	97[9]
1979–0	7.8	.7	8.1	7.5	50.9	2.29	2.16	2.87	2.69	1.71	2.40	30.0	22[8]
1980–1	8.7	—	8.3	7.3	49.7	2.84	2.60	3.64	3.34	1.83	2.55	31.2	31[7]
1981–2	10.2	—	9.6	9.0	52.4	2.44	2.21	3.06	2.87	1.95	2.60	60.5	63[8]
1982–3	—	.4	9.5	9.0	57.2	2.18	1.76	2.53	2.52	2.08	2.60	92.6	60[10]
1983–4	—	1.1	10.4	9.7	52.3	2.47	2.48	2.84	2.91	2.16	2.60	32.4	72[3]
1984–5	—	.5	12.0	11.2	53.4	2.29	2.09	2.55	2.59	2.08	2.60	55.0	50[10]
1985–6[4]	—	.7	13.2	11.6	51.0	1.98	1.53	2.24	2.23	2.08	2.60		160[10]
1986–7[5]	—	1.8	13.1	12.0	50.8	1.61	1.44	1.89	1.96	1.56	2.60		356[3]
1987–8[5]	—	2.9	11.0	10.0	51.7	1.85				1.49	2.60		392[3]

[1] Excludes support payments. [2] Duluth beginning March 1987. [3] Deficiency & diversion payments. [4] Preliminary. [5] Estimate. [6] Available for total feed grains only. [7] Disaster payments. [8] Deficiency & disaster payments. [9] Deficiency, disaster & diversion payments. [10] Deficiency payments. *Source: Economic Research Service, U.S.D.A.* T.24

High, Low & Closing Prices of May Barley Futures at Winnipeg In Canadian Dollars per Tonne

Year of Delivery		Year Prior to Delivery							Delivery Year					Life of Delivery Range
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1982	High	144.00	144.20	141.90	133.10	134.70	133.00	130.80	133.20	132.90	128.20	125.50	133.00	144.2
	Low	133.60	136.20	128.50	127.50	129.00	127.00	126.60	128.80	126.80	118.00	121.30	121.80	118.0
	Close	134.60	142.30	131.00	129.50	132.90	127.50	129.10	131.50	127.00	125.30	122.00	125.80	—
1983	High	127.90	127.50	116.80	108.70	105.00	110.50	107.10	111.30	109.50	107.50	109.20	108.20	127.90
	Low	127.90	114.80	106.30	102.50	100.70	101.50	105.50	104.90	101.90	100.00	104.80	100.30	100.00
	Close	127.90	115.70	107.80	104.80	101.50	105.80	106.20	108.50	103.60	106.80	107.30	101.20	—
1984	High	109.00	110.50	131.00	142.10	141.00	138.00	137.00	137.00	133.00	132.00	134.60	149.00	149.00
	Low	107.30	107.50	116.20	128.50	128.80	132.30	131.70	131.80	124.80	128.30	127.60	132.10	107.30
	Close	107.50	110.50	128.60	137.20	134.00	133.90	136.20	132.60	128.90	132.00	133.00	142.00	—
1985	High	136.00	138.50	137.00	134.30	135.20	138.80	139.10	138.10	137.80	138.20	142.00	149.00	149.00
	Low	130.10	124.30	129.80	129.70	132.20	133.80	136.50	136.20	130.40	134.00	138.20	128.50	124.30
	Close	131.50	137.50	130.10	134.20	134.20	138.10	137.10	137.80	134.80	138.00	142.00	129.60	—
1986	High	—	131.10	120.40	117.00	116.90	116.20	115.60	114.40	105.40	102.60	102.30	116.00	131.10
	Low	—	121.90	113.70	111.10	113.00	114.50	112.60	104.50	100.40	98.70	84.60	87.80	84.60
	Close	—	122.00	114.10	113.70	115.70	115.45	113.60	104.90	100.90	102.20	92.80	115.10	—
1987	High	—	86.50	85.50	89.90	88.20	87.40	85.40	85.50	83.40	80.30	79.50	86.50	89.90
	Low	—	85.30	83.50	83.20	83.20	82.70	84.00	83.00	77.20	76.50	74.00	76.00	74.00
	Close	—	85.30	83.60	88.90	84.00	85.10	84.40	83.50	78.30	78.30	76.30	78.10	—
1988	High	87.30	82.00	74.70	74.30	72.60	76.00	74.90						
	Low	77.10	73.20	72.50	72.30	70.50	69.00	71.20						
	Close	83.00	75.20	72.50	72.40	70.60	74.60	74.30						

Source: Winnipeg Commodity Exchange T.26

Production of Barley in the United States, by States In Millions of Bushels

Year	Arizona	California	Colorado	Idaho	Kansas	Minnesota	Maryland	Oklahoma	Montana	North Dakota	Oregon	Pennsylvania	Utah	South Dakota	Washington	Wyoming
1979	3.2	47.4	18.7	54.9	2.3	40.8	3.8	2.5	40.6	75.9	8.3	4.0	10.4	20.8	17.0	8.7
1980	4.5	44.1	15.9	59.0	2.1	34.6	3.4	1.7	44.1	48.0	10.1	3.8	10.8	15.2	32.3	8.6
1981	4.1	40.3	18.6	63.1	1.7	57.7	5.0	1.6	56.8	105.6	11.7	4.1	11.1	20.1	44.1	9.0
1982	3.8	38.4	15.9	75.9	2.5	51.0	5.4	1.1	76.4	103.4	15.5	3.4	12.9	23.4	49.4	9.4
1983	2.8	29.4	16.5	67.0	4.6	43.5	5.0	1.5	77.7	114.7	16.5	3.6	11.4	23.1	54.4	10.0
1984	5.4	29.0	20.2	88.4	6.7	61.8	5.5	2.1	59.1	153.7	17.4	3.6	11.6	30.3	63.7	10.4
1985	6.0	24.8	21.8	71.9	9.7	71.0	5.5	1.9	30.0	184.3	19.3	4.3	11.8	32.4	56.6	10.6
1986	2.9	23.6	21.0	72.2	10.4	55.0	4.9	1.3	85.0	176.0	20.8	3.9	11.6	35.9	45.0	10.9
1987[1]	3.2	15.3	14.3	59.0	4.8	47.0	6.0	.8	94.5	136.3	15.0	3.4	11.9	34.0	35.5	10.4

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.25

Average Cash Price of No. 2 (or better) Feed Barley, in Duluth[2] In Cents Per Bushel

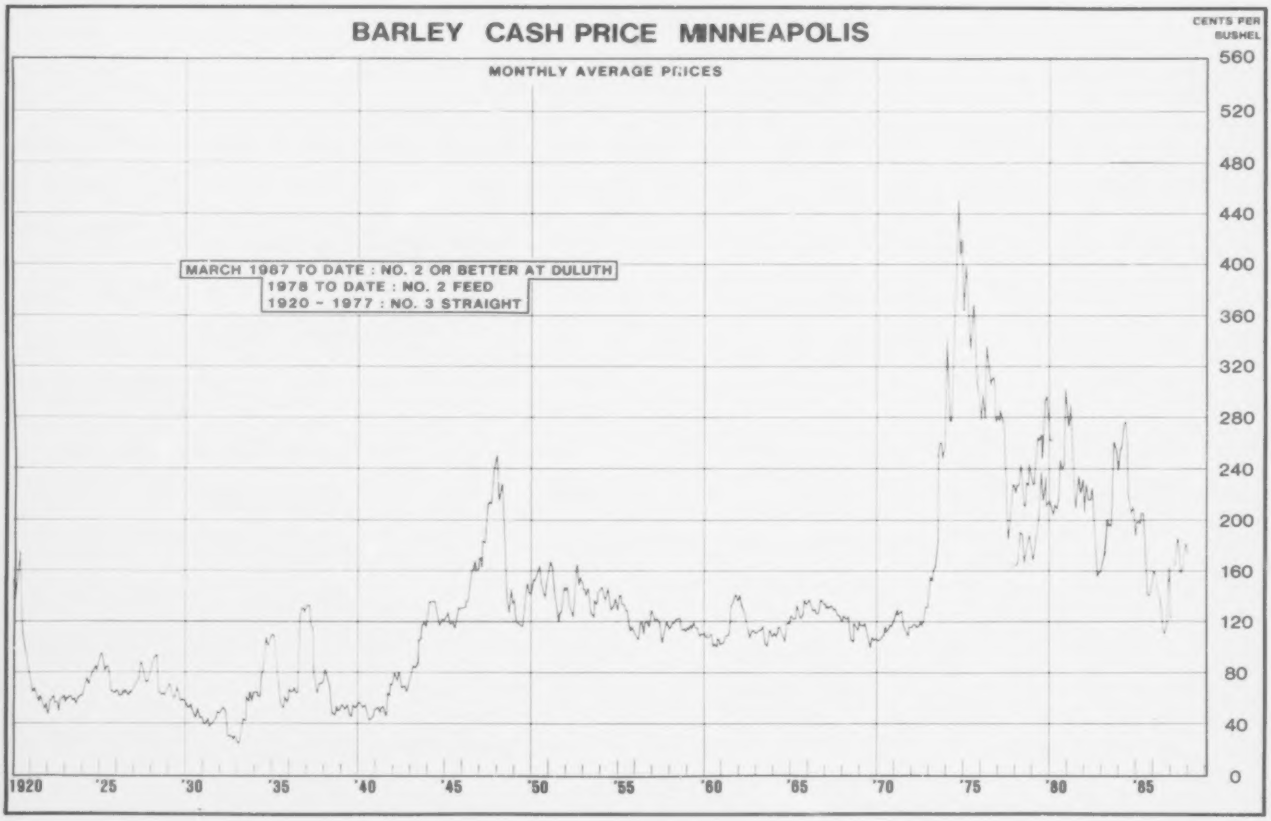
Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
1980–1	215	248	239	243	277	303	275	281	290	263	251	239	260
1981–2	209	226	235	221	226	231	206	220	227	216	216	224	221
1982–3	212	185	172	169	154	158	159	163	172	173	201	195	176
1983–4	196	195	242	261	260	253	239	255	256	265	274	277	248
1984–5	259	218	213	205	210	206	188	198	199	197	205	205	209
1985–6	190	166	146	140	141	149	160	157	—	—	—	131	153
1986–7[1]	123	116	113	127	150	163	123	—	—	164[2]	176	186	144
1987–8[1]	173	159	160	176	178	182							

[1] Preliminary. [2] Prior to March 1987 prices are at Minneapolis. *Source: Economic Research Service, U.S.D.A.* T.27

Month-End Open Interest of Barley Futures at Winnipeg In Contracts (20 Tonne)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	19,105	17,631	14,848	14,027	15,842	17,658	18,224	18,724	21,082	16,574	16,173	13,496
1981	14,560	13,335	13,836	16,380	14,252	12,968	15,101	16,620	16,086	10,971	10,591	8,832
1982	8,485	7,838	7,096	6,684	6,774	6,298	7,019	7,427	8,148	8,697	8,697	7,826
1983	9,952	10,972	9,535	10,458	11,064	12,592	12,688	18,486	19,110	17,099	15,083	10,673
1984	10,279	10,698	9,693	12,649	10,439	13,752	12,451	14,125	15,380	9,836	11,345	9,334
1985	10,984	11,828	9,622	8,152	9,187	9,187	8,808	9,529	9,948	10,166	9,948	7,624
1986	7,702	9,550	8,679	9,275	8,109	8,286	8,223	8,729	9,709	8,605	8,771	8,121
1987	8,107	8,695	8,981	9,759	11,167	11,389	9,004	9,086	11,273	13,089	13,030	12,003

Source: Winnipeg Commodity Exchange T.28



BARLEY

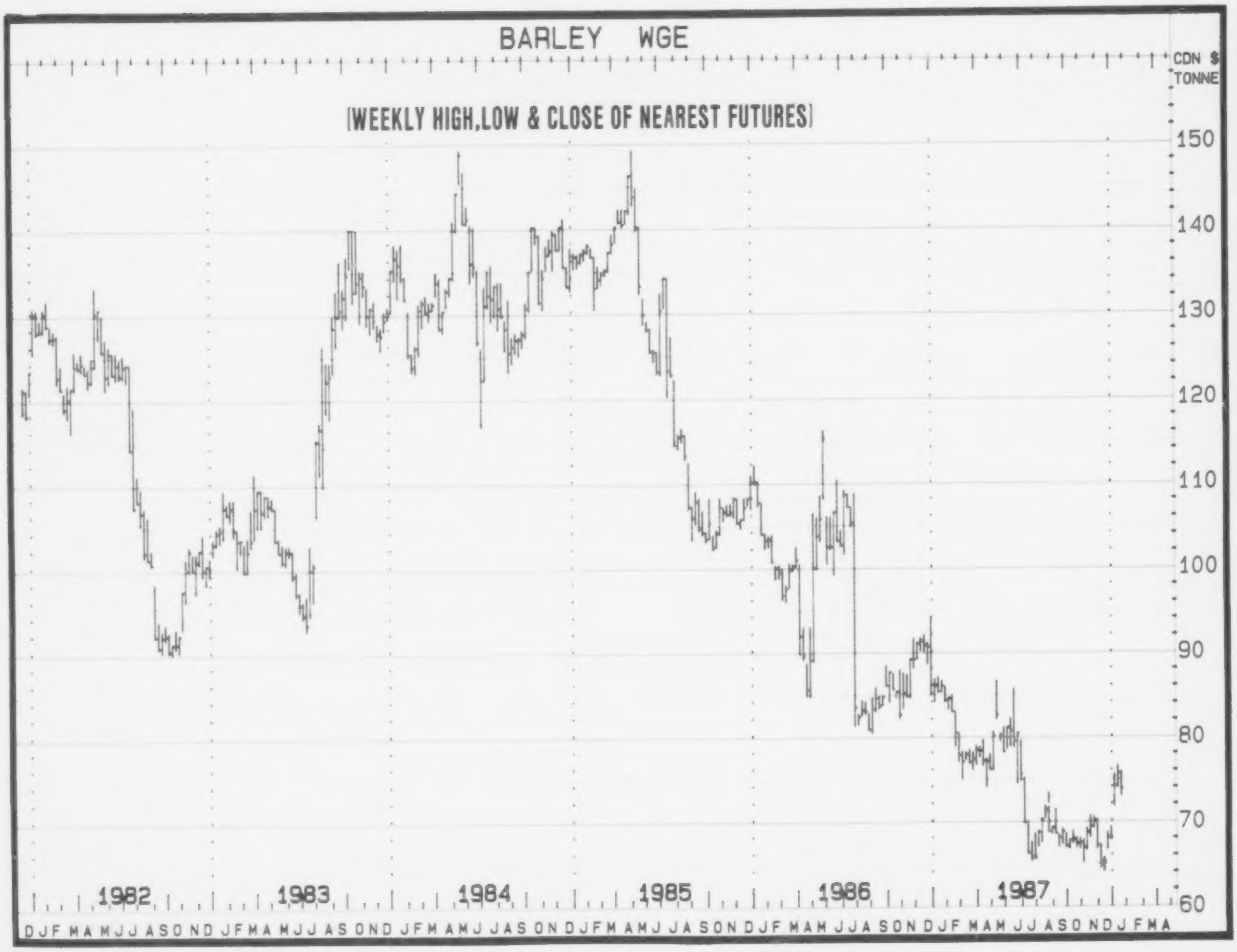
Salient Statistics of Barley in the United States In Millions of Bushels

Year Begin. June 1	Supply				Disappearance							Ending Stocks		
					Domestic Use									
	Beginning Stocks	Production	Imports	Total Supply	Food	Alc. Beverages	Seed	Feed & Residual	Total	Exports	Total Disapp.	Gov't. Owned[1]	Privately Owned[2]	Total Stocks
1978–9	173.1	454.8	10.5	638.4	6.0	147.5	13.6	217.6	384.7	25.7	410.4	2.5	225.5	228.0
1979–0	228.0	383.2	11.8	623.0	7.0	150.9	14.0	204.2	376.1	54.8	430.9	3.2	188.9	192.1
1980–1	192.1	361.1	10.2	563.4	7.0	155.3	13.2	173.9	349.4	76.7	426.1	3.4	133.9	137.3
1981–2	137.3	473.5	9.6	620.4	6.9	150.9	16.3	198.4	372.5	100.1	472.6	3.3	144.5	147.8
1982–3	147.8	515.9	10.7	674.4	7.2	145.5	17.4	240.4	410.5	47.2	457.7	6.0	210.7	216.7
1983–4	216.7	508.9	7.1	732.7	7.0	142.5	19.5	282.8	451.8	91.5	543.3	11.9	177.5	189.4
1984–5	189.4	599.2	10.1	798.7	7.0	142.0	21.6	303.9	474.5	76.8	551.3	14.6	232.8	247.4
1985–6	247.4	591.4	9.0	847.8	147.2		21.4	332.6	501.2	21.8	523.0	57.4	267.4	324.8
1986–7[3]	324.8	610.5	8.7	944.0	156.1		17.9	277.7	451.7	136.7	588.4	75.5	260.9	355.6
1987–8[4]	355.6	518.1	5.0	878.7	175.0			275.0	450.0	125.0	575.0			303.7
1988–9[4]	303.7													

[1] Uncommitted inventory. [2] Includes quantity under loan & farmer-owned reserve. [3] Preliminary. [4] Estimate.

Source: Economic Research Service, U.S.D.A.

T.29



Bauxite

Bauxite was a beneficiary of aluminum's spectacular advance during 1987. The virtually moribund U.S. domestic bauxite mining industry experienced a slight resurgence in production, and world-wide output was expected to have picked up over 1986's 79,000 tonnes.

Bauxite is the raw product from which alumina is refined to be reduced into aluminum. In the conversion, 2.3 pounds of bauxite make one pound of alumina. Four nations produce the bulk of the world's bauxite; Australia is the largest, followed by Guinea, Brazil and Jamaica. Australia is also the world's leading producer of alumina.

Global reserves of bauxite are estimated at 23.2 million tonnes, with Guinea accounting for more than 25 percent of the total, Australia for 20 percent, and Brazil for about 13 percent. Bauxite resources (reserves plus subeconomic and undiscovered deposits) are estimated to be 55 to 75 billion tonnes. Resources are concentrated in South America, Africa, and Asia, with important but smaller reserves in Oceania and Europe.

According to the U.S. Bureau of Mines, in the first eight months of 1987, the U.S. imported 172,000 tonnes of refractory-grade calcinated bauxite, for an annualized total of 258,000 tonnes, compared with 1986's total of 221,000 tonnes. U.S. imports of crude and dried bauxite for the same period in 1987 were 6.841 million tonnes, for a projected annual total of 10.261 million tonnes. China (PRC), the major supplier of calcinated bauxite in 1986, held onto that position in 1987. Guinea and Jamaica were the major crude bauxite suppliers.

U.S. domestic crude bauxite production in the first nine months of 1987 totaled 384,530 tonnes, for an annualized output of 512,706 tonnes. Since production of bauxite in 1986 has variously been estimated at around 500,000 tonnes, 1987's increase in domestic output was slightly more than two percent.

The Bureau of Mines discontinued the release of state-by-state domestic bauxite production figures in 1987, saying that the reduction in the number of producers "precludes reporting production by state without divulging individual company proprietary data." At the end of 1986, there were four companies mining bauxite in Alabama and Arkansas. Because of its poor quality, virtually all of the bauxite produced in the U.S. was consumed in non-metal uses such as abrasives, chemicals, refractories and speciality aluminas.

World Production of Bauxite In Thousands of Metric Tons

Year	Australia	Brazil	China	France	Greece	Guinea	Guyana[2]	Hungary	Indonesia	Jamaica[3]	Malaysia	Surinam	USSR[3]	U.S.[3]	Yugoslavia	World Total
1977	26,086	1,120	1,500	2,059	2,885	10,841	2,731	2,949	1,301	11,390	616	4,805	4,600	2,013	2,044	81,931
1978	24,293	1,160	1,500	1,978	2,663	11,527	2,425	2,899	1,008	11,739	615	5,188	4,600	1,669	2,565	80,975
1979	27,583	2,388	1,500	1,969	2,812	11,326	2,312	2,976	1,052	11,618	387	5,010	4,600	1,821	3,012	85,522
1980	27,179	5,538	1,500	1,921	3,286	11,862	1,844	2,950	1,249	12,054	920	4,646	4,600	1,559	3,138	89,220
1981	25,441	5,770	1,500	1,827	3,216	11,112	1,681	2,914	1,203	11,682	701	4,006	4,600	1,510	3,249	85,347
1982	23,625	6,289	1,500	1,662	2,853	11,827	1,783	2,627	700	8,378	589	4,205	4,600	732	3,668	79,335
1983	24,372	7,199	1,600	1,663	2,455	12,421	1,087	2,917	778	7,683	502	3,400	4,600	679	3,500	78,634
1984	31,537	6,433	1,600	1,607	2,296	13,160	1,333	2,994	1,003	8,937	680	3,454	4,600	856	3,347	87,771
1985[1]	31,839	6,251	1,650	1,530	2,453	13,100	1,675	2,815	830	5,975	492	3,000	4,600	674	3,250	84,310
1986[2]	32,431	6,224	1,650	1,379	2,500	12,130	1,466	3,022	750	6,964	566	3,847	4,600	510	3,300	85,938

[1] Preliminary. [2] Estimate. [3] Dry Bauxite equivalent of ore processed. *Source: Bureau of Mines* T.30

U.S. Salient Statistics of Bauxite In Thousands of Metric Tons

Year	Net Import Reliance as a % of Apparent Consumption	Av. Price F.O.B. Mine $ per Ton	Mine Production			Recovery[1] of Processed Bauxite			Dry Equivalent			Stocks, Dec. 31			
							Recovered[1]								
			Crude	Dried Equivalent	Value ($1,000)	Crude Ore Treated	Total	Dried Equiv.	Imports[2] (for Consumption)	Exports[2]	Consumption	Producers & Processors	Consumers	Govt.	Total
1977	91	5–15	2,436	2,013	27,555	419	169	294	12,989	26	14,528	685	7,264	15,087	23,036
1978	93	5–15	2,066	1,669	23,185	379	154	236	13,847	13	14,738	556	7,806	14,661	23,023
1979	93	5–15	2,186	1,821	24,875	466	235	336	13,780	15	15,697	620	7,958	14,661	23,239
1980	94	6–16	1,869	1,559	22,353	355	179	277	14,087	21	15,962	662	7,681	14,661	23,004
1981	94	8–20	1,847	1,510	26,489	419	187	328	12,802	20	13,525	897	7,395	14,661	22,953
1982	96	8–20	896	732	12,334	234	120	184	10,122	49	9,217	614	6,548	16,326	23,488
1983	96	13–20	826	679	11,309	293	140	225	7,601	74	9,100	552	5,061	16,326	21,939
1984	96	13–20	1,054	856	15,643	361	168	294	9,435	82	10,519	499	4,382	17,338	22,219
1985	96	13–20	787	674	12,855	330	166	284	7,158	56	8,206	220	3,423	18,357	22,000
1986[3]	97	13–20	617	510	10,366	250	128	196	6,456	69	6,901	152	3,147	18,472	21,771

[1] Calcined, or sintered. [2] Including concentrates. [3] Preliminary. *Source: Bureau of Mines* T.31

Bismuth

Bismuth prices were in something of a bull market in 1987. Pushed by sharply increasing demand from the chemical industry and from high-tech steel makers, prices started the year around $2.60 to $2.80 a pound, and by year-end had jumped to $4.90 a pound.

Demand was running at a very sharp pace, and for the first eight months of 1987, the Bureau of Mines reports that imports exceeded all of 1986's 2.489 million pounds. For the Jan.-Aug. period, bismuth imports totaled 2.540 million pounds for an implied annual rate of 3.8 million pounds, which would be up 49 percent over the year earlier.

Gains in imports reflected increased domestic consumption. While 1986 domestic consumption of bismuth was a record 2.918 million pounds, consumption for the first nine months of 1987 (Jan.-Sept.) was 2.525 million pounds for an implied annual usage rate of 3.786 million pounds, a 50-percent gain over 1986's record.

Four nations supply the bulk of U.S. bismuth import requirements. Belgium/Luxembourg, which is a major refinery center, is the largest supplier. Peru and Mexico are important, and Peru has shown significant increases in shipments to the U.S. In the secondquarter alone, Peru shipped 286,339 pounds of bismuth into the U.S., more than in all of 1985 and three-fourths as much as in all of 1986.

Consumers of bismuth cluster in the industrial areas of the Northeastern U.S. According to the Bureau of Mines, 48 companies east of the Mississippi River accounted for 90 percent of U.S. bismuth consumption. Bismuth is used mainly in pharmaceuticals and chemicals, where it is found in most commercial stomach remedies, and in industrial chemical applications. These two industries account for just about half of all bismuth consumed. In primary metals industries, the use of bismuth in the commercial production of free-machining alloy bar steel has become a hot spot for demand.

One hundred percent of primary U.S. bismuth production in 1987 was accounted for by one firm in Nebraska, and figures for domestic production of bismuth were not released by the government, as they were considered proprietary information. U.S. output was derived through the processing of intermediate metallurgical products, such as lead bullion which contains a minor amount of bismuth. The leading world bismuth producer is Australia, followed by Peru, Mexico, and Canada.

World Mine Production of Bismuth In Thousands of Pounds

Year	Romania (Ore)	Australia (concentrates)	Bolivia (concentrates)	Canada	China (Ore)	France (Metal)	South Korea (Metal)	Yugoslavia (Metal)	Japan (Metal)	Mexico (Metal)	Peru (Metal)	West Germany (Ore)	USSR (Metal)	World Total
1977	180	2,054	1,435	363	500	115	293	163	1,538	1,607	1,420	24	140	9,872
1978	180	2,324	677	320	530	N.A.	269	29	1,375	2,156	1,347	20	150	9,412
1979	180	2,200	22	306	570	N.A.	192	51	1,010	1,662	1,162	22	160	7,548
1980	180	2,650	24	377	570	N.A.	271	183	745	1,698	1,096	0	160	7,954
1981	180	2,600	24	370	570	N.A.	220	225	1,054	1,446	1,409	0	170	8,268
1982	180	3,310	11	417	570	N.A.	209	108	1,071	1,336	1,676	0	170	9,058
1983	180	3,110	13	445	570	N.A.	220	99	1,263	1,202	1,495	—	180	8,777
1984	180	2,980	7	366	570	N.A.	278	66	1,241	955	1,433	—	180	8,256
1985[1]	180	3,090	351	489	570	N.A.	298	150	1,415	2,039	1,731	—	185	10,498
1986[2]	180	2,200	180	440	570	N.A.	220	110	1,400	1,980	1,500	—	185	8,965

[1] Preliminary. [2] Estimate. *Source: Bureau of Mines* T.35

U.S. Salient Statistics of Bismuth In Thousands of Pounds

	Bismuth Consumed, By Uses									General Imports of Metallic Bismuth from				
Year	Experimental	Metallurgical Additives	Other Alloys	Fusible Alloys	Chemicals[4]	Other Uses	Total Consumption	Consumer Stocks Dec. 31	Exports of Metal & Alloys	Peru	Mexico	Japan	Total	Price[1] $ Per Pound
1977	.6	461.6	18.6	611.2	1,274.5	13.1	2,379.6	436.1	95.3	632.4	182.2		2,013.3	6.01
1978	.6	485.3	21.8	836.0	1,149.7	18.6	2,511.9	781.9	96.3	334.7	535.3		2,657.8	3.38
1979	3.2	703.8	22.0	721.0	1,248.7	28.5	2,727.2	629.7	427.8	648.7	604.8	185.5	2,167.3	3.01
1980	1.2	467.9	26.5	650.9	1,115.6	26.7	2,288.8	674.0	128.7	619.1	860.4	138.4	2,217.4	2.64
1981	.2	307.0	26.0	657.0	1,387.6	15.0	2,392.7	509.0	78.7	859.3	724.1	124.1	2,436.2	2.32
1982	.5	124.6	21.4	571.6	1,144.8	13.6	1,876.4	541.6	52.8	864.1	699.5	41.4	2,026.2	1.61
1983	1.7	522.8	20.0	622.8	1,103.7	13.0	2,285.3	577.5	306.1	653.7	706.6	68.3	1,972.0	1.72
1984	—	424.5	20.0	608.8	1,573.0	22.0	2,648.4	480.0	311.5	391.8	430.5	209.2	1,948.4	4.27
1985	—	668.2	21.0	610.1	1,325.0	20	2,643.5	507.1	268.7	173.3	678.2	99.4	1,998.9	5.18
1986[2]	—	772	28	639.0	1,462	18	2,919	763	92.6	235.8	800.0	219.6	2,489.6	3.25
1987[3]	—	850	20	800	1,500	12	3,000	715	60	1,000	900	150	3,000	4.00

[1] N.Y., average ton lots; effective Oct. 1981, domestic producers' list price was suspended. Major foreign producer price is recorded. [2] Preliminary. [3] Estimate. [4] Includes pharmaceuticals. *Source: Bureau of Mines* T.36

Broilers

Domestic broiler production in 1987 was estimated to be 8 percent higher than in 1986. Broiler slaughter in first-half 1987 was 6 percent above the year-earlier level, while slaughter weights were up 1 percent. USDA projected 1987 per capita consumption at 60.4 pounds, up 6 percent from 1986.

Broiler exports were expected to rise by 32 percent in 1987. The Export Enhancement Program (EEP) had a large impact on 1987 poultry exports, particularly those to Egypt, which were five times the 1986 level at 35 million pounds. About 22 million pounds of poultry were exported to Iraq, compared to none in 1986. Japan and Hong Kong were the largest importers of U.S. broilers.

Broiler prices have been strong in recent years, supported by consumer demand, fast food innovations, and new marketing techniques. However, prices dropped sharply in the spring of 1987, when production rose 8 percent and growth in supplies outpaced increases in demand.

With per capita consumption expected to rise by 5 percent in 1988, exports expected to drop by 7 percent, and ending stocks estimated to remain unchanged at 25 million pounds, broiler prices were likely to face further downward pressure. Production in 1988 was expected to expand by 5 percent, with narrowing (though still positive) profit margins.

Broiler Supply and Prices in the United States

Year & Quarters	Federally Inspected Slaughter				Total Production RTC[2] (Mil. Lbs.)	Per Capita Consumption (Lbs.)	Prices (Cents/Lb.)	
	Number (Mil.)	Avg. Wt. (Lbs.)	Liveweight Pounds (Mil. Lbs.)	Certified RTC Wt. (Mil. Lbs.)			Farm	City[4]
1983	4,133	4.09	16,984	12,389	12,400	50.8	29.2	50.4
1984	4,272	4.17	17,801	12,999	13,011	53.0	33.7	55.6
1985	4,439	4.20	18,623	13,569	13,762	55.5	30.2	50.7
1986[1]	4,643	4.24	19,676	14,266	14,316	56.7	34.5	57.0
I	1,099	4.30	4,722	3,414	3,419	13.7	39.8	50.4
II	1,189	4.24	5,045	3,673	3,687	14.7	32.4	54.2
III	1,196	4.17	4,988	3,620	3,635	14.4	41.0	66.5
IV	1,159	4.25	4,921	3,558	3,575	14.0	34.9	56.3
1987 I[3]	1,187	4.33	5,145	3,732	3,750	14.8	30.1	50.0
II	1,253	4.29	5,369	3,910	3,926	15.3	29.1	48.1
III	1,301	4.20	5,470	3,966	3,970		29.4	48.6
IV				3,850				44.0

[1] Preliminary. [2] Total production equals fed. inspec. slaughter plus other slaughter minus cut-up & further processing condemnation. [3] Forecast. [4] 12-city weighted average. *Source: Economic Research Service, U.S.D.A.* T.38

Salient Broiler Statistics in the United States

Year	Commercial[2] Production		Average			Total Chickens[2] Supply & Distribution							
						In Millions of Pounds					Consumption–Civilian		
	Number (Millions)	Live weight (Mil. Lbs.)	Live weight Per Bird (Lb.)	Farm Price (c Lb.)	Gross Income (Mil. $)	Commercial Broilers	Other Chickens	Total	Storage Stocks Jan. 1	Export & Shipments	Military	Total	Per Capita (in Lbs.)
1982	4,149	16,760	4.04	26.9	4,502	12,175	744	12,919	136	675	36	12,222	53.1
1983	4,184	17,038	4.09	28.6	4,873	12,400	715	13,115	149	591	36	12,510	53.8
1984	4,282	17,863	4.17	33.7	6,018	13,011	696	13,707	135	580	36	13,065	55.7
1985	4,479	18,851	4.20	30.2	5,680	13,762	636	14,397	139	582	36	13,748	58.0
1986[1]	4,646	19,651	4.24	34.6	6,780	14,316	629	14,945	171	734	37	14,158	59.1
1987[3]						15,504	651	16,155	187	940	35	15,210	62.9

[1] Preliminary. [2] Ready-to-cook basis. [3] Estimate. *Source: Economic Research Service, U.S.D.A.* T.39

Average Wholesale Broiler[1] Prices RTC In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.	4-Region Ave. Retail	Hens-N.Y.[2] 8–16 Lbs.
1982	45.2	44.5	44.8	42.6	45.8	47.0	46.1	43.4	43.6	42.3	40.3	42.0	44.0	71.6	60.8
1983	43.1	45.2	41.9	40.9	46.9	49.1	52.8	54.2	54.5	50.4	56.3	57.1	49.4	72.8	60.5
1984	62.1	61.2	62.0	56.0	57.6	55.5	57.3	51.5	53.6	48.8	52.1	49.0	55.6	81.4	74.4
1985	52.8	51.9	49.7	47.8	50.9	53.4	50.2	50.1	52.2	48.3	53.7	48.7	50.8	76.3	75.5
1986	51.7	49.0	50.3	50.0	54.6	58.3	69.1	69.7	61.0	61.6	57.5	50.0	56.9	83.5	72.2
1987	51.8	49.8	48.5	48.6	50.5	45.5	47.0	52.6	46.4						

[1] Ice packed, ready-to-cook. [2] In retail stores (urban areas), whole or cut-up ready to cook. *Source: Bureau of Labor Statistics* T.37

Burlap and Jute

Jute, used to make burlap and cords, is a strong, coarse fiber from tiliaceous plants. World production of jute and jute-like fibers was estimated at 3.681 million tonnes in 1986, down considerably from 1985's 6.551 million, according to the U.N. Food and Agriculture Organization. Estimates for 1987 were not available at this writing.

Jute output by China, the leading producer, slipped in both 1985 and 1986. That country's production was 715,000 tonnes in 1986, down from 2.060 million in 1985, due to reduced acreage. India's production also fell; it was placed at 1.400 million tonnes in 1986, compared with 2.291 million in 1985. Bangladesh, the major jute exporter, produced an estimated 907,000 tonnes in 1986.

Exports by Bangladesh amount to about 350,000-400,000 tonnes of jute a year, while China ships about 40,000 tonnes annually. Leading importers are the European Community, Pakistan, and Thailand.

The U.S. typically imports 10,000-15,000 tonnes of jute and about 100,000 tonnes of jute and jute carpet-backing cloth annually. Carpet-backing imports have fallen well below levels in the 1970s, due to substitution with synthetics.

Average Producer Price Index of Raw Jute, Bang Tossa C., Landed, at New York 1967 = 100[1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	29.00	28.50	29.00	29.00	28.80
1981	N.A.	27.35	27.35	N.A.	29.00	N.A.	29.00	29.00	29.00	29.00	24.00	22.55	27.30
1982	23.50	23.40	23.15	24.50	N.A.	N.A.	23.20	25.50	25.50	25.50	25.50	25.50	24.53
1983[1]	154.60	154.60	154.60	154.60	154.60	154.60	154.60	154.60	154.60	154.60	154.60	154.60	154.60
1984	154.60	154.60	154.60	178.90	178.90	178.90	178.90	178.90	178.90	178.90	288.10	N.A.	182.20
1985	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1986	102.0	102.0	102.0	102.0	102.0	102.0	106.4	106.4	106.4	106.4	106.4	106.4	104.2
1987													

[1] Data Prior to 1983 are in *Cents Per Pound*. [2] Data beginning Jan. 1986 are for jute & linen goods including yarns & fabrics with June 1985 = 100 as the index. *Source: Bureau of Labor Statistics* (0391-0101.99) T.41

Average Wholesale Price of Burlap (40 Inch—10 Oz.) at New York In Cents Per Yard

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	N.A.	39.80	40.00	38.50	N.A.	N.A.	N.A.	N.A.	33.50	33.50	N.A.	33.00	36.40
1981	N.A.	27.35	27.35	N.A.	29.00	N.A.	29.00	29.00	29.00	29.00	24.00	22.55	27.36
1982	23.50	23.40	23.15	24.50	N.A.	23.30	23.20	23.35	25.25	26.75	25.50	24.30	23.29
1983	22.65	24.25	26.35	26.20	24.40	25.20	24.75	25.50	26.25	26.95	29.65	31.70	26.15
1984	31.25	30.55	30.55	30.55	29.70	29.70	32.85	33.85	36.05	37.95	39.85	39.40	33.52
1985	39.60	37.25	36.05	35.80	36.40	34.25	31.15	31.15	26.50	24.90	23.75	25.10	31.83
1986	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Source: Bureau of Labor Statistics (0337-0461.01) T.42

Butter

The key event in the dairy market in 1987 was the implementation of the dairy termination program (DTP). Under provisions of the 1985 Farm Bill, dairymen were offered monetary incentives to dispose of their herds--either through slaughter or export. They also agreed to remain out of dairy farming for a period of five years. The program has now ended, but its impact on the dairy market was expected to continue. Data on the dairy industry have been affected, and comparisons between time periods are difficult, since this unique event was considered unlikely to be repeated soon.

The major result of the DTP was to reduce cow numbers. Over the first nine months of 1987, cow numbers were down an average of 3.9 percent from a year earlier, but there were indications that the size of the herd was stabilizing. An important effect of the DTP was to eliminate marginal producers. This, in turn, leaves the most productive herds on the farms. Data indicate that as the herd size declined, milk ouput per cow rose. Additionally, the milk-feed price ratio favored more concentrated feeding. With the size of the herd stabilizing and yields improving, milk output in the second half of 1987 moved above year-earlier levels.

With less milk available during the first half of 1987, manufacturers produced less butter. During the second quarter of 1987, butter production was 289.1 million pounds, 13 percent less than the 330 million pounds produced in the same quarter of 1986. January-August 1987 production was 747.4 million pounds, nearly 13 percent less than in the equivalent period in 1986.

Commercial disappearance of butter during the second quarter of 1987 was up almost 4 percent from a year earlier. The USDA credited lower retail prices, economic growth, and heavy promotion by the industry for the improvement. The agency indicated that in 1988 commercial use of dairy products like butter was expected to rise again, but it was not clear if the increase would match the previous year's. One question was whether the industry's promotion of its products would continue to be successful. Some dairy products, including butter, have come under increasing criticism from those who would like to see consumers become more health conscious and use less saturated fats.

Commercial stocks of butter have been variable. After being low to moderate, stocks at the beginning of July and August 1987 were more than 60 million pounds, a fairly large figure. By September 1, butter stocks had fallen back to 46 million pounds, which was still 7 percent more than in 1986 and 26 percent more than in 1985.

Total Commodity Credit Corporation (CCC) removals of butter during the January-September 1987 period were 135 million pounds, down almost 52 percent from the previous year's level of 280 million pounds. While commercial stocks of butter on September 1 were above the levels of 1986 and 1985, government stocks had dropped sharply. On September 1, 1987, government butter stocks were 164 million pounds, down 45 percent from 1986 and 29 percent less than in 1985.

In late September and early October, wholesale prices of butter dropped sharply, and the CCC started to purchase large quantitites. In the third quarter of 1987, the price of grade A butter in Chicago averaged 147.5 cents per pound, 2 percent less than the 150.6 cents averaged a year earlier. The price decline is difficult to explain, since commercial use had been strong and butter stocks were moderate. It may have been due to a reduction in the support price for manufacturing-grade milk. On October 1, the support price for this milk was reduced to $11.10/cwt., down from the $11.35 that had been in effect since the start of 1987. This reduction was required by the Food Security Act of 1985. In order to carry out the new milk support price, the support purchase price for butter was $1.3575 per pound.

Supply and Distribution of Butter in the United States In Millions of Pounds

	Supply				Distribution									93 Score Wholesale Prices	
					Domestic Disappearance					Dept. of Agr.					
						Civilian									
Year	Production	Cold Storage Stocks[1] Jan. 1[2]	Imports	Total Supply	Total	Donated	Per Capita —Lbs.—	Military	Exports & Shipments[4]	Jan. 1 Stocks[5]	Dec. 31 Stocks[5]	Removed by U.S.D.A. Programs	Total Use	Calif. AA $ Lb.	Chi. AA $ Lb.
1978	994	185	2	1,181	966	75	4.4	3	5	151	192	112	974	1.2666	1.1058
1979	985	207	2	1,194	1,005	90	4.5	6	5	192	153	82	1,016	1.4327	1.2374
1980	1,145	178	2	1,325	1,012	123	4.5	5	3	153	268	257	1,020	1.6135	1.4079
1981	1,228	305	3	1,536	970	108	4.3	4	132	268	382	352	1,106	1.6855	1.4897
1982	1,257	429	3	1,689	991	115	4.3	20	212	382	439	382	1,223	1.7187	1.4839
1983	1,299	467	3	1,769	1,134	258	4.9	16	120	439	464	413	1,270	1.7229	1.4832
1984	1,103	499	3	1,605	1,146	248	4.9	16	133	464	273	202	1,295	1.7459	1.4947
1985	1,248	310	4	1,562	1,157	243	4.9	7	181	273	181	334	1,345	1.6894	1.4197
1986[3]	1,202	217	7	1,423	1,107	194	4.6	7	57	181	220	288	1,171		
1987[6]	1,200	252			1,000					220					

[1] Commercial. [2] Includes stocks held by U.S.D.A. [3] Preliminary. [4] Includes U.S.D.A. shipments to Territories. [5] Includes butteroil. [6] Estimate. *Source: Department of Agriculture*

T.43

BUTTER

World (Total) Butter[1] Production In Thousands of Metric Tons

Year	Australia	Brazil	Canada	E. Germany	Czechoslovakia	Argentina	Denmark	France	Ireland	W. Germany	Netherlands	N. Zealand	India	Poland	Sweden	USSR	South Africa	United Kingdom	United States
1980	84	100	111		128	29	113	618	124	578	179	265	480	294	66	1,388	17	168	519
1981	79	60	125	281	127	32	108	599	125	545	183	247	620	260	64	1,318	15	170	557
1982	76	70	134	266	138	37	121	624	140	556	216	248	650	265	70	1,403	17	216	570
1983	88	70	118	291	149	34	131	637	164	627	271	252	670	300	73	1,562	19	240	589
1984	111	70	119	309	152	29	104	621	171	572	241	287	690	322	77	1,588	18	205	500
1985	114	70	108	316	150	32	110	595	163	515	229	293	700	308	74	1,596	17	202	566
1986[2]	105	65	109	320	150	32	112	633	160	567	264	299	720	289	66	1,700	15	222	545
1987[3]	104	75	105	325	150	33	97	570	150	483	200	248	660	295	64	1,650	13	200	495

[1] Factory (including creameries and dairies) & farm. [2] Preliminary. [3] Forecast. *Source: Foreign Agricultural Service, U.S.D.A.* T 44

Production of Creamery Butter in Factories in the United States In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	105.7	99.9	101.1	112.2	116.6	93.9	83.7	75.3	77.0	91.4	84.7	103.6	1,145
1981	123.1	108.4	115.5	117.3	115.5	95.9	82.7	82.3	85.2	99.5	93.4	109.5	1,228
1982	127.3	115.9	123.4	334.0			256.4			300.0			1,257
1983	139.1	119.2	123.6	124.0	120.7	103.7	91.4	84.6	84.7	100.5	98.1	109.6	1,299
1984	127.3	108.9	107.6	103.0	105.1	81.8	72.7	70.2	67.5	84.4	79.8	95.1	1,103
1985[1]	118.4	107.5	105.9	111.4	112.9	95.6	92.4	92.1	92.1	109.3	99.4	115.4	1,248
1986[1]	135.8	119.4	120.2	122.7	114.7	93.0	79.7	69.9	80.2	85.3	80.3	101.3	1,202
1987[1]	109.2	97.8	107.6	104.2	101.7	83.1	76.2	67.6	78.1				

[1] Preliminary. [2] Estimate. *Source: Crop Reporting Board, U.S.D.A.* T 45

Commercial Disappearance of Creamery Butter in the U.S. In Millions of Pounds

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
1980	249.9	161.3	229.3	237.9	878.4	1984	194.0	241.3	215.6	251.9	902.7
1981	188.9	214.2	222.9	243.2	869.2	1985	200.0	203.9	241.5	272.9	918.2
1982	211.4	217.6	217.3	251.0	897.3	1986[1]	198.6	220.1	234.4	269.8	922.9
1983	209.5	198.6	217.0	256.6	881.7	1987[1]	222.6	228.8			

[1] Preliminary. *Source: Economic Research Service, U.S.D.A.* T 46

Cold Storage Holdings of Creamery Butter in the U.S., on First of Month In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	177.8	191.0	205.6	217.2	238.1	281.7	295.9	308.0	306.4	302.9	301.5	302.7
1981	304.6	332.1	372.3	407.4	450.4	473.6	507.5	515.5	515.6	489.5	470.0	451.1
1982	429.2	430.3	440.4	447.8	—	—	541.6	—	—	510.0	—	—
1983	466.8	485.4	522.0	529.0	555.7	576.1	589.6	588.4	581.8	552.3	523.9	506.7
1984	499.4	510.6	532.5	529.3	532.4	538.5	516.7	489.6	462.7	426.3	374.3	335.9
1985	296.6	277.3	289.4	291.7	272.7	283.2	286.8	280.7	264.6	247.0	231.6	206.9
1986	205.5	206.3	242.4	283.3	305.0	330.8	342.8	337.6	304.4	279.6	253.3	218.5
1987[1]	193.0	206.6	231.6	254.0	247.9	250.2	237.9	211.2	187.3	176.2	171.2	

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T 47

Wholesale Price of 92 Score Creamery (Grade A) Butter at Chicago In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	130.2	130.3	130.4	134.3	136.9	139.0	139.3	144.5	145.1	147.1	147.6	147.7	139.3
1981	147.3	147.3	147.3	147.3	147.3	147.5	147.9	148.0	148.5	150.6	148.9	148.1	148.0
1982	147.5	147.5	147.8	147.4	147.3	147.3	147.6	148.1	148.4	147.4	148.2	147.9	147.7
1983	147.3	147.3	147.3	147.3	147.3	147.3	147.8	151.0	147.6	147.3	143.1	143.1	147.3
1984	140.4	141.3	142.1	142.9	142.9	150.0	155.6	150.5	158.1	158.1	158.1	145.6	148.8
1985	141.5	141.3	141.3	141.9	141.9	141.9	141.5	140.7	141.2	141.6	139.5	139.1	141.1
1986	138.8	138.8	137.5	138.8	138.8	139.1	143.7	153.9	154.2	153.5	151.9	145.5	144.5
1987	137.3	136.8	137.8	138.8	138.4	144.6	149.0	148.1	145.3				

Source: Economic Research Service, U.S.D.A. T 48

Cadmium

Cadmium prices perked up quite a bit in the latter part of 1987. In November, the New York dealer price range for cadmium metal was between \$2.20/lb. and \$2.35. The metal had started the year at \$0.97-\$1.05, as quoted by New York dealers. The advance wasn't without its obstacles; at one point the large cadmium mining companies, whose list prices are usually above those of dealers, attempted to hold the line on prices but weren't able to do so. Price weakness was evident in the early second quarter, when AMAX Inc. lowered its list price to \$1.00/lb. from \$1.20, in response to slack offtake.

The move succeeded, and the lower prices encouraged consumers to take on additional inventory, allowing producers to increase their prices again. With demand stimulated, stocks through the period generally declined. Estimated third-quarter 1987 ending stocks totaled 333 tonnes, down 24 percent from end-1986 stocks of 439 tonnes.

The ripple impact of increased demand chasing smaller cadmium supplies helped to pick prices up off their lows. And rising prices made additional production and greater resource recovery efforts more profitable.

U.S. imports of cadmium in the first six months of 1987 were slightly lower when matched against full-year 1986's totals. For the first six months (Jan.-Jun.), cadmium metal and scrap imports totaled 1,529 tonnes, for an implied annual 3,058 tonnes, compared with full-year 1986 imports of 3,174 tonnes.

U.S. cadmium consumption is expected to continue to grow through increased demand for nickel-cadmium batteries and cadmium telluride usage in photovoltaic solar cells. World resources of cadmium are estimated at nine million tonnes, or about 0.3 percent of global zinc resources (of which cadmium is a byproduct.)

Domestic production of cadmium metal for the first nine months of 1987 totaled 1,134 tonnes, for an implied annual rate of 1,512 tonnes, a 2 percent gain over the previous year's 1,486 tonnes. Cadmium sulfide production through the first nine months totaled 563 tonnes, for an implied annual 750 tonnes, which would be a 16 percent rise over full-year 1986's 644 tonnes. Recovery from other compounds amounted to 1,176 tonnes for the first nine months, for an implied annual 1,568 tonnes, an 8 percent increase over 1986's full-year total.

World Refinery Production of Cadmium In Metric Tons

Year	Australia	Belgium	Canada	China	Finland	France	W. Germany	Italy	Japan	Mexico	Norway	Poland	Un. King.	USSR	United States[3]	Zaire	World Total
1976	649	1,200	1,314		428	532	1,275	436	2,500	710	80	750	190	2,700	2,047	266	16,998
1977	670	1,440	1,185		527	790	1,336	448	2,844	908	97	754	295	2,750	1,999	246	18,288
1978	747	1,164	1,265		611	694	1,182	378	2,531	897	120	761	291	2,800	1,653	186	17,310
1979	804	1,440	1,455		590	689	1,266	527	2,597	830	115	773	424	2,850	1,823	212	18,679
1980	1,012	1,524	1,303	250	581	789	1,194	568	2,173	778	130	698	375	2,850	1,578	168	18,238
1981	1,031	1,176	1,298	270	621	663	1,192	489	1,977	590	117	580	278	2,900	1,603	230	17,381
1982	1,010	996	854	300	566	793	1,030	475	2,034	607	104	570	354	2,900	1,007	280	16,387
1983	1,106	1,260	1,456	300	616	513	1,094	385	2,214	642	117	570	340	3,000	1,052	308	17,444
1984	1,082	1,472	1,605	300	614	568	1,111	452	2,423	671	150	570	390	3,000	1,686	318	19,114
1985[1]	1,000	1,252	1,717	300	610	337	1,095	526	2,535	734	159	600	370	3,000	1,603	296	18,634
1986[2]	1,000	1,300	1,421	300	620	400	1,185	411	2,400	700	155	600	350	3,000	1,486	300	18,257

[1] Preliminary. [2] Estimate. [3] Primary & secondary metal. *Source: Bureau of Mines* T.49

Salient Statistics of Cadmium in the United States In Metric Tons of Contained Cadmium

Year	Net Import Reliance as a % of Apparent Consumption	Production				Imports (for Consumption)			Price[5] \$ per lb.	Exports Cadmium Metal, Alloys, Dross,		Consumption[4]	Stocks, Dec. 31		
		Primary	Producers										Industry		
		Metallic	Shipments	Value Mil. \$	Cadmium Sulfide[3]	Metallic	Flue Dust[3]	Total		Flue Dust	Value Ths. \$		Metallic	Compounds	Distributors
1975	41	1,990	742	4.2	895	2,375	314	2,689	3.36	180	589	3,055	1,881	121	
1976	64	2,047	2,707	10.5	729	3,094	223	3,317	2.66	229	713	5,381	1,242	148	
1977	51	1,999	1,837	7.1	639	2,332	13	2,345	2.96	107	316	3,818	1,452	72	255
1978	63	1,653	1,957	5.9	698	2,881	—	2,881	2.45	326	864	4,510	1,152	45	296
1979	64	1,823	2,468	9.5	813	813	—	2,572	2.76	211	550	5,099	517	52	327
1980	55	1,578	1,271	5.2	801	2,617	—	2,617	2.84	236	464	3,534	841	42	439
1981	63	1,603	1,382	3.8	527	3,090	—	3,090	1.93	239	332	4,378	1,077	68	215
1982	73	1,007	1,832	2.6	374	2,305	—	2,305	1.11	11	126	3,728	635	167	150
1983	72	1,052	1,495	1.8	670	2,196	—	2,196	1.13	170	351	3,763	209	49	91
1984	51	1,686	1,811	2.6	771	1,889	—	1,889	1.69	106	208	3,300	208	59	52
1985[2]	57	1,603	1,791	2.4	477	1,988	—	1,988	1.21	86	342	3,720	136	111	59
1986[1]	69	1,486	2,030	1.9	645	3,174	—	3,174	1.25	38	188	4,385	303	73	65

[1] Estimate. [2] Preliminary. [3] Cd content. [4] Apparent Primary cadmium in all forms. [5] Sticks & Balls in 1 to 5 short ton lots.
Source: Bureau of Mines T.50

Castor Beans

World production of castorseed in 1987/88 (Oct.-Sept.) was estimated at 810,000 tonnes, 15 percent below 1986/87 output and 33 percent below 1985/86. Output in China was expected to rise by 15 percent. But India's production was forecast to drop by 15 percent, and Brazil's to plummet by 55 percent. Acreage reductions and unfavorable weather accounted for these declines. Output in the USSR was expected to be off 3 percent.

Global castor oil production was forecast to decline by 10 percent in 1987/88 to 363,100 tonnes. With the exception of the USSR, there were no significant increases in output from any of the major producers. Brazil's output was off by 14 percent and India's was down 20 percent. World stocks of castor oil at the start of 1987/88 were projected to be almost 12 percent above the previous season's opening stocks. France, the USSR, and the U.S. were the world's largest importers of castor oil. West Germany and Japan were the major importers of castorseed.

U.S. imports of castor oil were off nearly 14 percent in 1987/88, after rising 32 percent in 1986/87. U.S. disappearance of castor oil in 1987/88 was forecast at 39,000 tonnes, up 8 percent from 1986/87 and 30 percent more than in 1985/86.

Castor oil prices (ex-tank Rotterdam) were strong in 1986/87, averaging $789 per tonne for the period, versus $655 the previous season.

World Production of Castorseed Beans In Thousands of Metric Tons

Crop Year	China	Brazil	Ecuador	Ethiopia	India	Romania	Paraguay	Israel	Mexico	Pakistan	Thailand	USSR	Philippines	Sudan	World Total
1982–3	156	192	5	1	345	8	20		5	26	34	89	14	2	922
1983–4	179	172	6	1	405	6	17		4	24	25	65	18	2	949
1984–5	164	225	6	1	469	8	16		4	17	23	58	24	1	1,040
1985–6[1]	280	416	6	1	305	6	38		4	20	32	62	12	1	1,207
1986–7[2]	235	263	5	1	260	8	22		4	20	35	68	7	1	954
1987–8[2]	270	118	5	1	220		32			20	33	66	8	2	811

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A. "The Oil World."* T.51

Castor Oil Consumption[1] in the United States In Thousands of Pounds

Crop Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1982–3	5,143	6,486	6,307	6,551	7,223	6,216	6,281	6,122	4,642	3,849	5,725	7,488	72,033
1983–4	5,488	4,749	4,965	4,764	4,990	5,296	5,599	6,723	5,663	7,958	7,859	6,812	70,866
1984–5	6,937	5,581	4,178	4,519	5,178	5,930	5,169	7,480	7,158	5,320	5,816	3,839	67,105
1985–6[2]	4,807	3,614	3,840	2,833	5,016	4,935	4,528	5,282	5,602	7,054	6,084	6,111	59,706
1986–7[2]	6,982	5,569	4,743	5,754	5,867	6,251	5,939	6,749	6,984	4,964	3,357	7,078	70,237
1987–8[2]	7,254	7,113											

[1] In inedible products (Resins, Plastics, etc.). [2] Preliminary. *Source: Bureau of the Census.* T.52a

Castor Oil Stocks in the United States In Thousands of Pounds

Crop Year	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept 1
1982–3	6,874	5,922	7,820	6,722	6,278	6,742	4,966	9,155	6,493	4,837	8,975	4,766
1983–4	5,501	5,688	6,086	4,860	5,096	2,101	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1984–5	6,998	7,432	5,669	11,734	10,403	11,129	18,518	24,952	19,072	21,623	16,652	16,001
1985–6[1]	14,632	17,087	28,477	21,031	24,754	25,586	26,263	19,739	30,125	24,740	29,809	26,919
1986–7[1]	22,212	26,907	31,876	29,376	35,042	30,039	39,369	30,616	40,460	40,821	43,204	41,246
1987–8[1]	33,738	36,060	31,806									

[1] Preliminary. *Source: Bureau of the Census.* T.52b

Monthly Average Wholesale Prices of Castor Oil No. 1, Brazilian Tanks at New York In ¢ per Lb.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	42.80	43.30	43.30	43.30	44.70	45.90	46.50	45.50	45.50	45.50	45.50	45.50	44.78
1983	45.50	45.50	45.50	46.80	49.50	49.50	53.40	61.80	78.50	78.50	78.50	78.50	59.29
1984	78.50	78.50	78.50	78.50	78.50	73.70	69.00	77.30	65.00	65.00	65.00	65.00	72.71
1985	65.00	65.00	65.00	65.00	65.00	36.00	36.00	36.00	36.00	36.00	36.00	34.00	47.92
1986	34.50	34.50	34.50	34.50	33.38	32.25	32.38	32.56	31.70	31.63	32.00	33.00	33.08
1987	32.80	32.25	34.27	36.00	36.00	36.00	42.50	42.50	42.50				

Source: Foreign Agricultural Service, U.S.D.A. T.53

Cattle and Calves

The U.S. cattle/calf inventory peaked in the mid-1970s, and was 132 million head on January 1, 1975. By 1980, it had contracted to about 111 million head. It then gained about 4 million head during the early 1980s. Liquidation resumed in the mid-1980s, because of volatile financing costs and shifts in consumer tastes. The January 1, 1987, cattle/calf inventory of 102 million was the lowest in 25 years. The downtrend apparently slowed during 1987, but the total was expected to continue falling in 1988.

Cattle and calves on June 1, 1987, totaled 112 million, 2 percent under a year earlier and the lowest for the date since the June 1 inventory series began in 1973. (In 1987, USDA shifted the mid-year inventory date from July 1 to June 1, adjusting the data accordingly.) Beef cow numbers increased slightly during first-half 1987, suggesting that liquidation was ending. But there was little evidence of a strong expansionary phase taking hold. Dairy cow numbers fell 5 percent because of the Dairy Termination Program (DTP). Beef and dairy replacement heifers retained for breeding were unchanged and down 2 percent from a year earlier, respectively.

The number of heifers calving and entering the cow herd from January-May 1987 was a relatively low 39 percent. However, cow slaughter continued to decline from a year earlier. Through May, beef cow slaughter was 12 percent lower than in 1986, and dairy cow kills were off 22 percent. Although forage supplies were rebuilt and grain prices were relatively low, cattlemen sold replacement heifers, rather than keeping them. The opportunity cost of retaining a heifer remained high, considering what a calf from a heifer bred in spring 1987 might sell for when weaned in fall 1988.

The 1987 calf crop was estimated at 40.7 million head, 1 percent below 1986 and the smallest since 1961. A larger proportion of the calf crop is being born in the first part of the year; this rose from 67.5 percent in the early 1980s to an estimated 69.5 percent in 1987.

Several factors interacted to maintain feeder cattle supplies. Heifer retention was low, freeing heifers for feedlots. Nonfed steer and heifer slaughter in the second quarter declined 24 percent from a year earlier, when DTP slaughter was high. (Nonfed slaughter was expected to remain below a year earlier through 1988.) Calf slaughter through June was down 17 percent from 1986. Mexican feeder steer imports also added to supplies.

On July 1, 1987, feeder cattle outside feedlots and available for stocker operations, feedlot placement, or herd retention were down 5 percent from 1986. Feeder calves were down 2 percent and yearlings were down 11 percent. Stocker-feeder cattle were held on grass longer to increase sales weights. As abundant forage and large supplies of competing meats were expected to hold down fed cattle prices, this trend was considered likely to continue. The opportunity cost of grass in many areas is low, and literally millions of acres of forage may go unused or underutilized.

Cattle on feed on July 1, 1987, in the quarterly reporting states rose 9 percent from the 1986 level, which was the lowest since 1975. On-feed inventories were unchanged from 1984/85.

Second-quarter 1987 beef production was 8 percent below 1986. Slaughter fell 7 percent, primarily on sharp declines in nonfed slaughter against 1986's DTP slaughter. Fed cattle were a larger portion of total slaughter during the quarter, but smaller-than-expected pork supplies resulted in cattle being bid out of feedlots ahead of schedule, as total red meat output fell 8 percent. Omaha choice fed steers averaged $68.60/cwt. in the second quarter, $14 above 1986's second quarter and the highest since second-quarter 1982. Prices peaked near $71 in May, before declining to $68 in late June and $62-$63 in late July.

Beef production was forecast to drop about 4 percent in 1988. A nearly 5-percent decline in slaughter was expected to be only partially offset by heavier slaughter weights, with fed-cattle slaughter falling 1-2 percent from 1987's levels. But fed cattle's share of total slaughter should continue to rise. The share was 69 percent in 1986, and it was estimated at 74 percent in 1987 and at 76 percent in 1988. Cow slaughter could fall 4 percent in 1988, but the sharpest yearly declines are probably past. Nonfed steer and heifer slaughter could decline to the lowest levels since the early 1970s, as more cattle are retained on pasture for additional gains before being placed on feed as yearlings.

Cattle prices were considered likely to remain near the 1987 average in 1988, despite lower beef production. Production of competing meats was expected to rise about 7 percent in 1988, resulting in a 2 to 3 percent rise in total red meat and poultry production. This would result in record total red meat and poultry disappearance of 222 pounds per capita. Cattle prices were considered likely to peak in the spring of 1988, but the quarterly fall-to-spring rise was forecast at $1 to $3, versus the $8 runup in 1987. Meat production was 3 percent below a year earlier in spring 1987, but was expected to rise 4 to 5 percent in spring 1988, placing supplies nearly 2 percent above the spring 1986 DTP slaughter peak.

Retail beef prices in 1987 were expected to rise about 4 percent from 1986's average of $2.31/lb. But 1988 price gains were expected to average only 1 to 2 percent above the 1987 average.

Live cattle imports in Jan.-May 1987 were 632,663 head, up 9 percent from the same period in 1986. Imports from Mexico were 514,306 head, up 14 percent. The weak peso, Mexico's reduced consumer purchasing power, and higher U.S. feeder cattle prices made exporting cattle to the U.S. very attractive. Imports of Canadian cattle were down 6 percent to 118,097 head. Imported cattle accounted for 4 percent of U.S. cattle slaughtered in 1986, compared with an average of 2 percent from 1981 to 1985.

Futures Markets

Live cattle futures and options on futures are traded on the Chicago Mercantile Exchange (CME) and the MidAmerica Exchange. Feeder cattle futures and options are traded the CME.

CATTLE AND CALVES

Cattle Supply and Distribution in the United States In Thousands of Head

Year	Cattle & Calves on Farms Jan. 1	Imports	Calves Born	Total Supply	Livestock Slaughter—Cattle and Calves: Commercial: Federally Inspected	Other[2]	All Commercial	Farm	Total Slaughter	Deaths on Farms	Exports	Total Disappearance
1983	115,001	921	43,925	159,847	37,614	2,112	39,726	410	40,136	5,494	56	45,693
1984	113,700	753	42,500	156,955	38,910	1,969	40,879	390	41,269	5,464	71	46,805
1985	109,749	836	41,045	151,030	37,933	1,745	39,678	370	40,048	5,051	125	45,224
1986[1]	105,468	1,335	41,201	148,004	39,108	1,588	40,696	304	41,000	5,038	106	46,216
1987[3]	102,031						39,000					

[1] Preliminary. [2] Wholesale and retail. [3] Forecast. *Source: Economic Research Service, U.S.D.A.* T.56

U.S. Cattle on Feed in 13 States, Quarterly In Thousands of Head

Year	Number on Feed[1]	Placed on Feed	Marketings	Other Disappearance	Year	Number on Feed[1]	Placed on Feed	Marketings	Other Disappearance
1984	9,908	24,917	22,540	1,632	1986	9,754	23,553	22,836	1,236
I	9,908	5,511	5,714		I	9,754	5,270	5,763	316
II	9,340	5,562	5,620		II	8,945	5,221	5,821	375
III	8,700	6,252	5,684		III	7,970	6,336	5,876	233
IV	9,000	7,559	5,507		IV	8,197	6,726	5,376	312
1985	10,653	23,366	22,887	1,398	1987[2]				
I	10,653	5,315	5,907	373	I	9,235	5,700	5,767	371
II	9,688	5,206	5,787	437	II	8,797	5,961	5,669	423
III	8,670	5,480	5,969	244	III	8,666	6,557	5,986	245
IV	7,937	7,365	5,224	324	IV	8,992		5,514	

[1] Beginning of period. [2] Preliminary. *Source: Economic Research Service, U.S.D.A.*

United States Beef Supply and Utilization

Year		Commercial production	Farm production	Beginning stocks	Imports	Total supply	Exports	Shipments	Military purchases	Ending stocks	Total disappearance	Per capita disappearance	Retail weight per capita	Population
		Million Pounds										*Pounds*		*Million*
1983	I	5,527	64	294	527.89	6,412.89	66.81	10.35	28	299	6,008.73	25.95	19.20	231.50
	II	5,556	27	299	516.67	6,398.67	61.96	10.27	34	254	6,038.44	26.02	19.22	232.00
	III	6,015	28	254	539.04	6,836.04	71.62	9.14	34	268	6,453.28	27.74	20.53	232.60
	IV	5,962	64	268	347.47	6,641.47	71.71	10.47	25	325	6,209.29	26.66	19.73	233.20
	Year	23,060	183	294	1,931.07	25,468.07	272.10	40.23	121	325	24,709.74	106.23	78.61	232.60
1984	I	5,708	61	325	470.5	6,564.5	90.0	10.8	24	326	6,113.6	26.16	19.36	233.70
	II	5,819	26	326	371.0	6,542.0	70.5	13.2	36	303	6,119.3	26.13	19.34	234.20
	III	5,949	26	303	513.7	6,791.7	86.6	14.2	27	320	6,343.9	27.03	20.00	234.70
	IV	5,933	61	320	467.9	6,781.9	81.6	9.1	25	358	6,308.2	26.74	19.78	236.00
	Year	23,418	171	325	1,823	25,746	328.8	47.3	112	358	24,900	106.05	78.48	234.80
1985	I	5,692	60	358	420	6,530	82	12	28	334	6,073	25.7	19.0	236.20
	II	5,923	26	334	537	6,820	77	12	31	296	6,405	27.0	20.0	236.80
	III	6,167	25	296	633	7,121	91	12	30	308	6,680	28.1	20.8	237.40
	IV	5,775	60	308	481	6,624	78	15	26	317	6,188	26.0	19.2	237.90
	Year	23,557	171	358	2,071	26,157	328	51	115	317	25,347	106.9	79.1	237.00
1986[1]	I	5,769	55	317	502	6,643	102	13	24	297	6,207	26.0	19.0	238.50
	II	6,246	24	297	482	7,049	83	12	33	322	6,600	27.6	20.1	239.10
	III	6,273	24	322	640	7,259	144	14	30	292	6,779	28.3	20.7	239.60
	IV	5,925	55	292	505	6,777	193	13	23	311	6,237	26.0	19.0	240.20
	Year	24,213	158	317	2,129	26,817	521	52	110	311	25,823	107.9	78.8	239.40
1987[1]	I	5,756	55	311	543	6,665	127	14	32	293	6,200	25.7	18.8	240.80
	II	5,737	24	293	627	6,681	136	13	23	237	6,273	26.0	19.0	241.50
	III													
	IV													
	Year[2]	23,330	158	311	2,250	26,049	630	57	104	300	24,958	103.3	76.4	241.70

[1] Preliminary. [2] Forecast. *Source: Economic Research Service, U.S.D.A.* T.56b

World Cattle and Buffalo Numbers as of January 1 In Millions of Head

Year	Argentina	Australia	Brazil	Canada	China	Colombia	France	W. Germany	India	Poland	Turkey	Mexico	South Africa	USSR	Un. Kingdom	United States	World Total
1981	58.8	25.2	93.0	12.2	95.0	24.4	23.6	15.1	245.6	11.3	16.9	34.0	13.2	115.1	13.1	114.4	943
1982	57.9	24.6	93.0	12.1	N.A.	24.2	23.5	15.0	260.0	11.5	17.0	34.7	13.1	115.9	13.0	115.4	959
1983	58.0	22.5	93.0	11.7	76.1	24.0	23.7	15.1	263.7	11.0	16.5	33.9	12.5	117.2	13.2	115.0	1,033
1984	58.4	22.2	93.3	11.4	78.1	22.4	23.5	15.6	267.5	11.1	16.0	33.9	12.1	119.6	13.1	113.7	1,038
1985	58.7	22.8	94.7	11.0	82.6	21.9	23.1	15.7	271.4	10.9	15.5	33.9	12.0	121.1	13.0	109.7	1,046
1986	57.5	23.4	95.2	10.6	86.8	20.5	22.8	15.6	275.3	10.8	15.0	32.2	11.8	120.9	12.7	105.5	1,044
1987[2]	55.7	23.6	97.0	10.4	91.7	19.3	22.2	15.3	273.6	10.5	14.5	33.6	12.0	122.1	12.5	102.0	1,043
1988[1]	55.0	23.7	98.3	10.3	96.7	18.2	21.2	14.8	275.1	10.5	13.9	35.6	12.3	121.5	12.2	100.0	1,045

[1] Forecast. [2] Preliminary. *Source: Foreign Agricultural Service, U.S.D.A.* T.54

U.S. Cattle on Feed in 7 States In Thousands of Head

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Average
1983	8,316	8,052	7,604	7,268	7,221	7,331	7,278	6,861	6,704	6,951	7,683	7,814	8,316
1984	8,006	7,917	7,515	7,568	7,376	7,318	7,125	6,811	6,747	7,442	8,221	8,544	8,006
1985	8,635	8,169	7,877	7,814	7,495	7,444	7,057	6,404	6,155	6,461	7,582	7,892	8,635
1986	7,860	7,322	7,262	7,293	7,077	7,076	6,543	6,331	6,404	6,811	7,546	7,826	7,920
1987	7,633	7,294	7,143	7,222	7,233	7,560	7,193	6,689	6,818	7,535			

Source: Economic Research Service, U.S.D.A. T.54a

U.S. Cattle Placed on Feedlots in 7 States In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	1,457	1,320	1,798	1,565	1,853	1,420	1,205	1,731	1,994	2,660	1,785	1,533	20,261
1983	1,509	1,179	1,394	1,566	1,843	1,595	1,174	1,582	2,003	2,358	1,711	1,736	19,744
1984	1,566	1,301	1,764	1,515	1,798	1,445	1,323	1,680	2,265	2,546	1,945	1,624	20,772
1985	1,449	1,342	1,594	1,417	1,666	1,267	1,078	1,510	1,988	2,779	1,776	1,540	19,346
1986	1,581	1,220	1,650	1,565	1,746	1,142	1,544	1,802	2,103	2,403	1,814	1,405	20,005
1987	1,591	1,427	1,754	1,726	1,954	1,462	1,264	1,897	2,424	2,604			

Source: Economic Research Service, U.S.D.A. T.54b

U.S. Cattle Marketings in 7 States In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	1,522	1,413	1,547	1,414	1,413	1,510	1,482	1,689	1,575	1,527	1,485	1,430	18,007
1983	1,643	1,506	1,593	1,470	1,583	1,570	1,497	1,651	1,682	1,626	1,459	1,425	18,701
1984	1,569	1,621	1,594	1,523	1,637	1,544	1,553	1,683	1,489	1,657	1,501	1,414	18,785
1985	1,782	1,540	1,559	1,603	1,589	1,572	1,670	1,670	1,603	1,573	1,380	1,401	18,989
1986	1,740	1,470	1,563	1,631	1,615	1,128	1,692	1,659	1,637	1,587	1,447	1,494	19,243
1987	1,803	1,473	1,586	1,581	1,524	1,702	1,694	1,700	1,636	1,690			

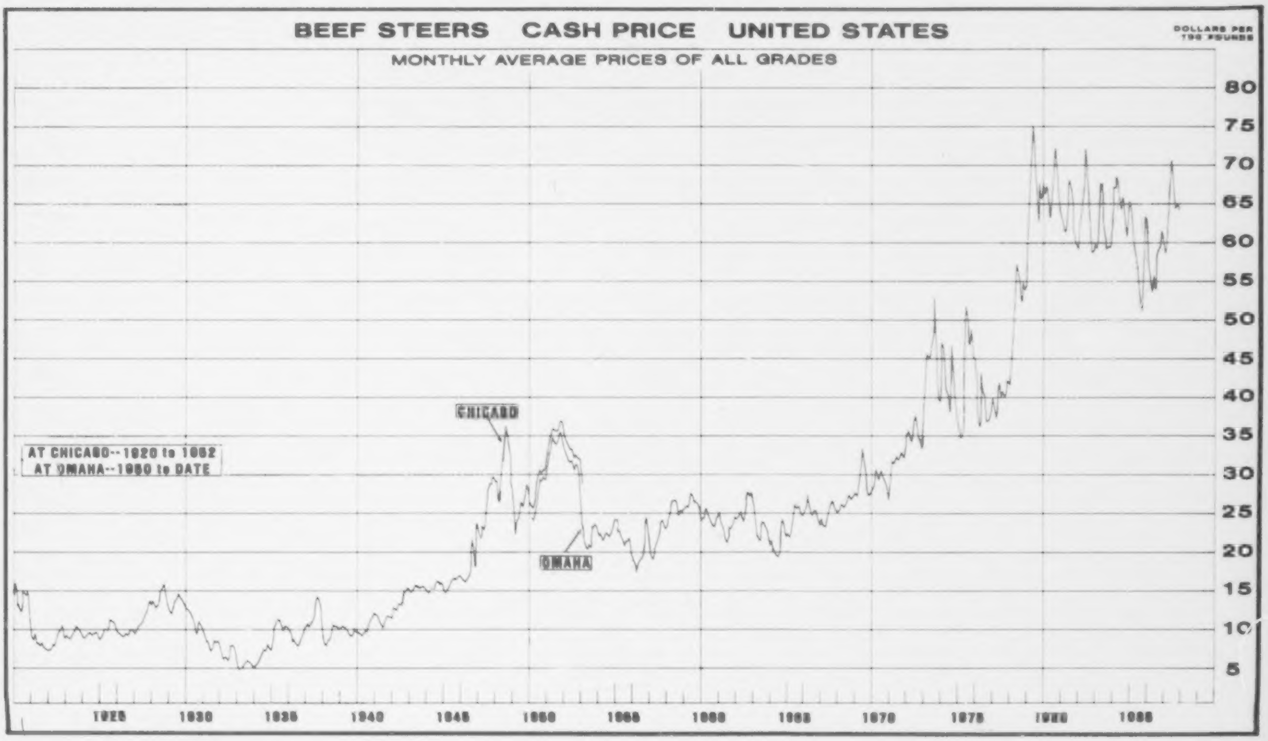
Source: Economic Research Service, U.S.D.A. T.54c

Condition[1] of Pasture and Range Feed in the United States, on First of Month In Percent of Normal

Year	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1983	84	80	85	88	76	63	66	73	N.A.
1984	74	75	79	80	75	70	66	74	N.A.
1985	79	83	81	77	70	75	76	79	N.A.
1986	N.A.	76	80	83	76	79	83	85	N.A.
1987	N.A.	81	84	82	78	76	79	81	N.A.

[1] Indicates current supply of feed for grazing on non-irrigated pastures & ranges relative to that expected from existing stands under very favorable weather conditions. [80 & over, good to excellent; 65–79, poor to fair; 50–64, very poor; 35–49, severe drought; under 35, extreme drought.]
Source: Statistical Reporting Service, U.S.D.A. T.57A

CATTLE AND CALVES



Average Wholesale Prices of Beef Steers at Omaha, Choice (900–1100 Lbs.) In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	59.33	61.20	64.03	67.70	67.51	65.90	62.22	61.27	59.19	59.58	59.41	62.85	62.52
1984	67.08	67.07	68.60	67.86	65.89	64.28	65.79	64.36	62.68	60.85	64.24	65.32	65.33
1985	64.35	62.80	59.58	58.72	57.58	56.69	53.26	51.94	51.29	58.02	63.30	62.94	58.37
1986	59.69	56.42	55.55	53.69	55.79	54.08	58.27	59.04	59.43	59.73	61.54	59.82	57.74
1987	58.79	61.02	61.58	66.30	70.66	68.83	65.80	64.50	64.81	64.81			

Source: Economic Research Service, U.S.D.A. T.65

Average Prices of Steers (Stocker & Feeder) Kansas City In Dollars Per 100 Pounds

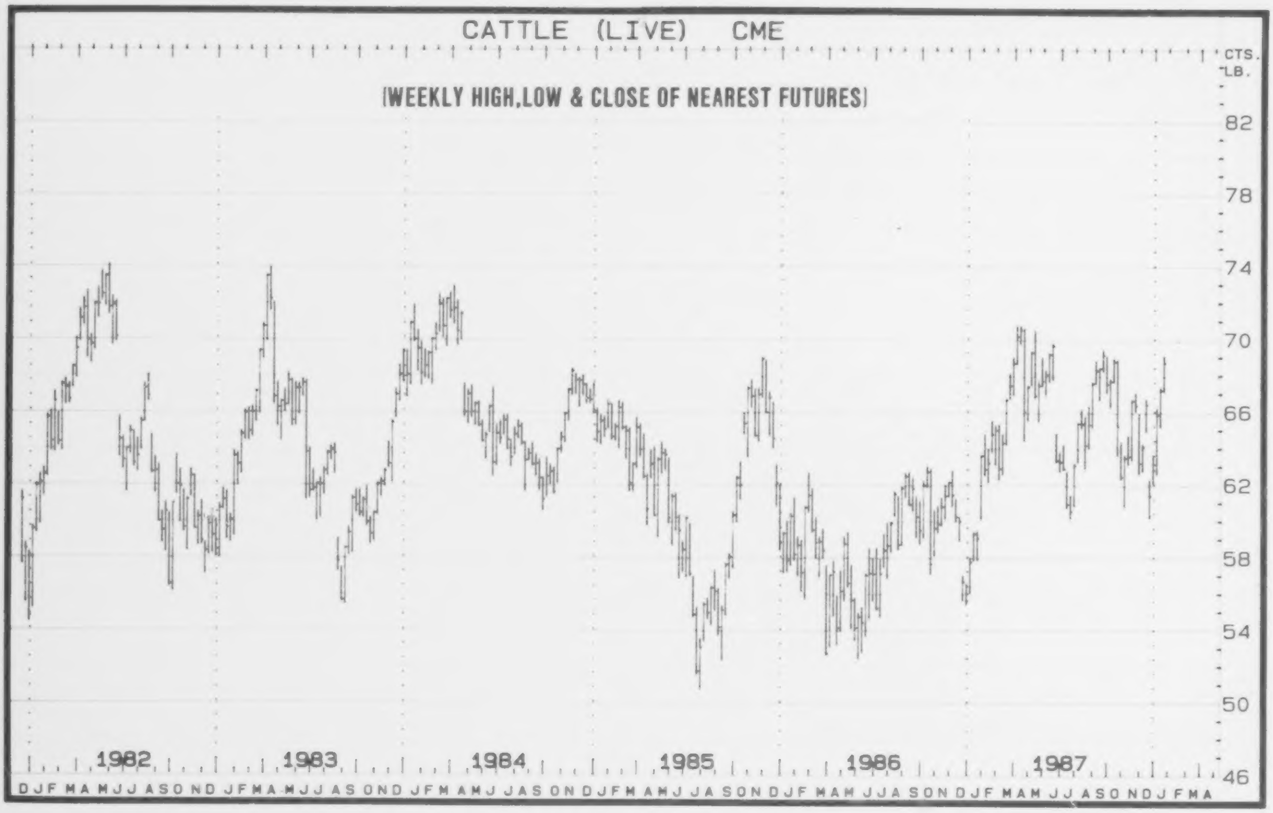
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	63.70	66.34	66.71	65.90	63.88	60.41	58.21	59.58	55.81	56.97	58.12	61.00	61.39
1984	64.39	65.97	66.30	64.15	60.82	59.28	62.17	61.34	62.01	62.74	63.96	64.26	63.11
1985	66.00	67.02	66.66	66.06	64.25	59.11	57.43	57.81	56.27	59.12	60.05	62.04	62.08
1986	61.34	61.68	59.99	56.68	62.21	53.69	57.98	62.20	61.51	61.94	62.77	62.83	60.38
1987	65.75	69.01	68.47	70.56	70.53	70.21	71.22	75.31	77.10	73.21			

Source: Economic Research Service, U.S.D.A. T.61

Federally Inspected Slaughter of Cattle in the United States In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	2,894	2,554	2,828	2,615	2,820	3,000	2,737	3,220	3,156	3,099	2,899	2,994	34,816
1984	2,951	2,836	2,954	2,728	3,169	3,062	2,996	3,260	2,903	3,313	2,923	2,784	35,880
1985[1]	3,134	2,661	2,761	2,848	3,052	2,770	3,023	3,089	2,877	3,097	2,669	2,778	34,765
1986[1]	3,204	2,613	2,726	3,086	3,123	3,017	3,213	3,101	3,019	3,164	2,693	2,944	35,913
1987[1]	3,084	2,564	2,805	2,875	2,780	2,945	3,009	2,972	2,977	3,024			

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.66

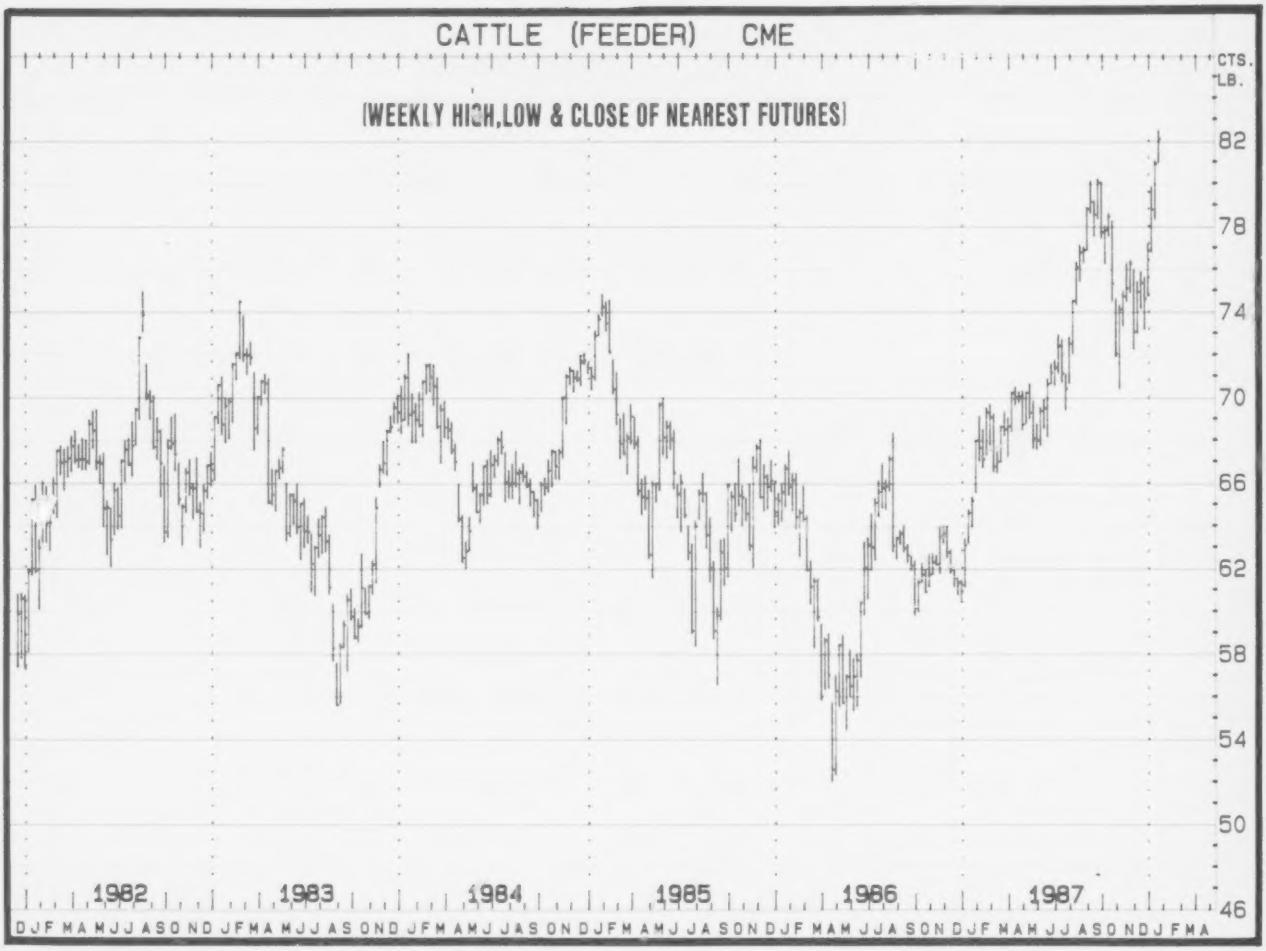


High, Low & Closing Prices of June Live Beef Cattle Futures at Chicago In Cents per Pound

Year of Delivery		Year Prior to Delivery									Delivery Year						Life of Delivery Range
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1982	High	72.30	71.90	70.40	67.95	66.97	67.35	66.72	66.05	63.55	61.60	64.75	66.87	70.10	73.65	74.00	74.00
	Low	70.40	68.05	66.85	64.82	64.02	64.42	64.60	61.80	54.75	56.00	60.65	62.72	66.20	69.30	69.57	54.75
	Close	70.40	69.80	67.00	67.02	65.37	65.27	65.20	63.30	55.77	61.40	62.92	66.42	69.57	73.37	70.00	—
1983	High	—	65.50	63.30	64.55	63.72	63.25	62.50	61.80	62.00	63.90	66.47	69.77	71.15	68.05	67.70	71.15
	Low	—	63.90	60.00	60.50	61.77	58.40	58.02	58.52	58.55	60.75	62.90	64.80	65.10	64.30	65.75	58.02
	Close	—	64.10	62.75	62.85	62.30	59.27	59.62	60.80	61.10	62.72	65.27	69.62	66.12	66.05	66.85	—
1984	High	—	—	62.25	64.65	66.55	65.70	65.55	66.30	67.65	68.35	69.35	69.85	69.70	67.35	67.25	69.85
	Low	—	—	61.35	61.10	62.95	63.00	63.20	63.60	65.05	65.45	65.10	67.00	65.62	64.60	63.32	61.10
	Close	—	—	61.80	64.15	63.25	64.90	63.75	65.45	67.05	66.05	69.10	68.70	66.17	64.62	66.05	—
1985	High	—	—	66.55	67.35	67.40	67.70	67.10	68.15	68.10	69.00	69.50	67.75	66.92	64.27	61.47	69.50
	Low	—	—	66.00	65.00	65.00	65.70	65.20	66.30	66.50	66.35	66.55	64.60	62.32	59.05	56.80	56.80
	Close	—	—	66.55	65.00	67.37	66.40	66.75	67.70	67.85	68.35	67.37	67.20	62.65	60.10	56.80	—
1986	High	—	66.60	66.05	64.55	62.75	62.25	63.40	62.45	63.05	63.15	62.50	60.52	57.55	59.35	57.10	66.60
	Low	—	65.60	63.00	58.10	59.10	56.25	60.00	59.90	60.15	58.65	57.40	58.20	53.17	53.40	52.42	52.42
	Close	—	65.90	63.35	60.20	59.60	62.22	61.47	62.42	61.40	61.97	61.37	58.25	57.20	54.07	56.97	—
1987	High	57.50	57.00	57.95	60.00	58.75	59.25	57.45	58.07	57.50	61.17	62.50	64.35	67.25	70.45	69.75	70.45
	Low	53.35	53.70	53.30	55.85	57.00	56.30	55.25	56.50	54.90	55.67	59.45	59.80	62.75	65.47	66.90	53.30
	Close	56.35	54.20	55.60	58.30	58.75	56.82	57.05	57.20	55.55	61.0[illegible]	62.40	63.42	67.20	67.67	69.62	—
1988	High	63.20	65.00	64.90	64.90	68.40	69.65	68.20	65.32	65.92							
	Low	61.20	62.10	62.30	62.60	63.67	67.22	60.60	60.80	62.00							
	Close	63.20	62.40	64.40	64.45	68.15	67.32	62.52	63.77	65.50							

Source: Chicago Mercantile Exchange

T.62



Month-End Open Interest of Live Beef Cattle Futures at Chicago In Contracts

Year	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1982	51,036	51,082	61,160	58,383	61,341	48,314	44,024	44,645	42,694	42,412	44,085	45,115
1983	49,014	56,500	59,992	59,771	58,548	47,307	42,292	49,524	52,174	48,215	49,014	51,629
1984	54,669	57,351	59,793	50,190	44,142	41,790	38,689	37,064	38,416	45,984	64,085	57,242
1985	58,769	57,744	63,236	57,324	56,216	49,594	45,674	48,583	50,888	65,037	68,592	59,361
1986	53,559	55,203	52,551	52,245	55,736	58,420	66,835	64,662	60,580	57,668	64,658	56,421
1987	74,535	91,671	89,788	90,237	94,846	81,881	75,265	85,244	87,859	74,625	75,523	71,804

Source: Chicago Mercantile Exchange T.64

Volume of Trading of Live Beef Cattle Futures at Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	387.2	332.5	434.3	355.8	389.3	458.4	340.2	326.0	353.1	421.2	337.4	305.6	4,441.0
1983	370.4	332.7	455.8	489.0	389.1	328.9	302.2	324.9	344.1	335.4	297.9	277.9	4,248.2
1984	457.4	397.6	404.2	323.2	256.4	215.5	265.3	202.6	181.0	245.9	345.7	258.5	3,553.3
1985	340.7	290.3	327.9	304.3	412.0	317.2	440.5	370.2	400.2	445.3	405.0	383.8	4,437.3
1986	492.6	381.0	408.2	462.1	424.2	374.5	448.7	373.0	387.1	376.9	289.4	273.0	4,690.5
1987	376.6	426.7	474.2	456.6	523.7	357.8	394.8	412.7	485.8	580.4	363.1	377.0	5,229.3

Source: Chicago Mercantile Exchange T.63

Beef Steer-Corn Price Ratio at Omaha[1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	24.6	25.9	26.5	26.5	27.2	26.5	26.1	29.2	27.5	27.7	25.1	25.2	26.5
1983	24.5	23.4	22.7	21.9	21.8	21.2	19.6	18.1	17.8	18.4	18.3	19.8	20.6
1984	21.6	22.1	21.1	20.4	19.7	19.1	20.4	20.7	21.3	22.5	24.6	25.6	21.6
1985	24.8	24.1	22.2	21.5	21.5	21.0	20.6	21.7	21.8	25.7	27.8	26.7	23.3
1986	25.6	24.4	24.0	22.9	23.0	22.3	28.9	36.6	42.1	42.7	39.7	38.8	31.0
1987	40.8	43.9	41.6	42.3	40.1	38.8	41.0	44.0	42.8				

[1] Bushels of No. 2 yellow corn equal in value to 100 pounds liveweight of choice slaughter steers, 900–1100 lbs.

Source: Economic Research Service, U.S.D.A. T.56c

Farm Value, Income & Wholesale Prices of Cattle & Calves

	United States			At Omaha									Beef, Dressed (Car Lots)		
	Farm Value of All Cattle—Jan. 1		Gross Income From C. & C.[2] Million $		Steers[3]		Heifers		Feeder Steers All Weights at K.C.	Cows, Utility Omaha	Vealers, Choice So. St. Paul	Cows, Commercial Omaha			
Year	Per Head $	Total Million $		Prime	Choice	Good	Good	Choice	Dollars Per 100 Pounds				Steer, Choice	Heifer, Choice	Cow[5] Canners[6]
1982	415	47,967	30,390	N.A.	64.22	59.47	59.82	62.79	62.79	39.96	77.70	40.35	101.68	98.54	78.96
1983	406	46,769	29,240	N.A.	62.52	56.99	58.53	61.42	61.39	39.35	72.97	39.40	97.87	94.45	78.48
1984	396	44,976	31,219		65.34	59.14	61.18	64.59	63.11	39.81	63.98	40.75	100.17	96.62	74.70
1985[1]	402	44,139	29,226		58.37	53.28	55.52	58.24	62.08	38.32	58.28	37.91	90.68	88.48	74.13
1986[1]	391	41,280			57.74	52.15	57.33	52.92	60.38	37.19	59.92	36.96			

[1] Preliminary. [2] Excludes interfarm sales & Gov't. payments. Cash receipts from farm marketings + value of farm home consumption. [3] Weighted average prices of beef steers, sold out of first hands for slaughter. [5] All weights. [6] & cutter.

Source: Statistical Reporting Service, U.S.D.A. T.60

Average Price Received by Farmers for Beef Cattle In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average[1]
1982	53.50	56.30	58.60	60.10	62.60	61.10	58.80	58.10	55.60	53.80	52.60	52.50	56.70
1983	54.30	57.10	59.70	61.00	59.90	58.30	55.80	54.20	52.30	51.70	51.20	54.50	55.50
1984	57.20	59.70	61.70	60.10	58.60	57.60	57.60	56.60	55.70	54.10	54.80	57.00	57.30
1985	57.40	58.50	57.30	56.20	55.30	53.60	50.20	49.40	49.10	52.10	54.70	53.70	53.70
1986[2]	53.20	53.00	52.40	50.30	51.00	50.10	52.90	54.40	54.60	54.40	54.60	53.20	52.60
1987[2]	56.40	58.80	59.30	62.60	63.00	62.50	61.10	61.90	63.70	62.90	62.00	61.90	61.30

[1] Weighted average by quantities sold. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.68

Average Price Received by Farmers for Calves In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average[1]
1982	57.00	58.90	61.90	62.10	64.20	61.70	60.40	61.80	59.00	58.30	58.10	58.80	59.80
1983	62.40	66.50	68.40	66.70	66.20	64.30	60.30	57.40	56.10	57.20	59.40	60.60	61.70
1984	61.10	63.90	63.70	62.30	60.80	59.20	59.10	59.10	56.60	58.20	59.40	59.40	59.90
1985	64.10	65.40	65.90	65.40	65.60	62.60	60.00	61.40	58.30	60.20	61.40	58.80	62.10
1986[2]	60.10	62.80	61.90	58.90	58.00	58.10	59.40	61.10	63.40	62.70	62.20	62.20	61.10
1987[2]	66.40	70.00	72.50	75.10	77.30	78.80	80.30	82.30	85.90	81.40	82.90	83.00	78.10

[1] Weighted average by quantities sold. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.69

Federally Inspected Slaughter of Calves & Vealers in the U.S. In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982		702			609			692			726		2,729
1983	221	204	246	202	194	211	214	262	258	259	266	262	2,798
1984	253	236	264	226	233	218	258	294	245	282	275	247	3,030
1985[1]	270	236	261	252	246	221	274	272	271	298	268	298	3,168
1986[1]	289	256	276	284	257	240	281	262	263	276	238	272	3,195
1987[1]	248	225	251	215	189	214	220	202	229	233			

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.67

Cement

U.S. cement output hasn't kept up with demand, and imports have increased from 1982's 2.9 million tons to an estimated 16.2 million in 1986. The share of imports as a percent of new supply rose from 4.5 percent in 1982 to 18 percent in 1986.

During January-September 1987, portland cement shipments in the U.S. and Puerto Rico were 67.9 million short tons, slightly above the comparable 1986 period's level. Masonry cement shipments during the same period totaled 2.29 million short tons, 5 percent more than in 1986's corresponding period. Imports in January-August 1987 were 11.8 million tons, 9 percent above 1986 levels.

U.S. cement production in 1986 included 76.2 million tons of portland cement and some calcium aluminate. Domestic consumption was: 70 percent, ready-mix concrete; 12 percent, concrete products such as block, pipe and prestressed, precast concrete; 6 percent, building material dealers; 5 percent, highway contractors; and 7 percent, other contractors, government agencies, and miscellaneous users.

In the U.S., about 64 percent of all cement is used in building construction. Residential building accounts for 30 percent; public buildings, 7 percent; commercial buildings, 22 percent; and farm buildings, 5 percent.

Cement prices have increased modestly since 1983, reflecting low inflation and strong competition between low-priced imports and domestic supply. Portland cement prices increased by 4 percent in 1984, by 2 percent in 1985, and were little changed in 1986.

World Production of Hydraulic Cement by Selected Countries In Millions of Short Tons

Year	Rep. of Korea	Brazil	Canada	China	France	West Germany	India	Italy	Japan	Poland	Spain	South Africa	Turkey	United Kingdom	United States	USSR	World Total
1983	23.5	23.0	8.7	119.3	27.0	33.6	28.0	43.2	89.2	17.9	33.8	8.7	15.0	14.8	71.3	141.3	1,010.4
1984	22.5	21.8	9.5	133.5	25.0	31.9	32.0	41.6	86.9	18.4	28.0	9.0	17.3	14.9	78.7	143.5	1,037.0
1985[1]	22.5	22.7	11.2	157.1	26.0	28.4	36.4	40.4	80.3	16.5	26.7	7.8	19.4	14.7	78.9	144.1	1,055.7
1986[2]	25.8	27.9	11.1	178.0	25.9	29.2	35.3	39.0	78.5	17.4	26.5	6.9	22.0	14.8	79.9	149.0	1,099.9

[1] Preliminary. [2] Estimate. *Source: Bureau of Mines* T.70

Salient Statistics of Cement in the United States

Year	Net Import Reliance as a % of Apparent Consumption	Production: Portland (Million Tons)	Production: Others[2] (Million Tons)	Production: Total (Million Tons)	Capacity Used[3] %	Shipments From Mills: Total Mil. Tons	Shipments From Mills: Value[4] $ Mil.	Average Value (F.O.B. Mill) $ per Ton	Stocks at Mills Dec. 31 (Million Tons)	Imports[5] (Million Tons)	Exports[5] (Million Tons)	Apparent Consumption (Million Tons)	Raw Materials Used in Producing Portland Cement: Cement Rock (Mil. Short Tons)	Limestone[6] (Mil. Short Tons)	Clay & Shale (Mil. Short Tons)	Gypsum & Anhy (Mil. Short Tons)	Total (All) (Mil. Short Tons)
1983	6	67.5	2.9	70.4	64.6	70.9	3,534	49.95	6.7	4.2	.1	73.4	21.6	73.1	8.7	3.5	113.5
1984	10	74.4	3.3	77.7	71.8	80.2	4,152	51.80	6.9	8.7	.1	84.3	27.0	78.5	9.1	4.0	124.8
1985	16	74.6	3.3	77.9	73.0	83.0	4,286	51.61	7.2	14.1	.1	87.5	24.3	77.6	8.8	4.0	121.4
1986[1]	19	75.2		78.8	73.7	87.6	4,408	50.32	6.7	16.1	.1	91.5	23.5	79.0	9.0	4.1	122.2

[1] Preliminary. [2] Masonry, natural & pozzolan (slag-line). [3] At Portland-cement mills. [4] Value received f.o.b. mill, excluding cost of containers. [5] Hydraulic & clinker cement. [6] Including oyster shells. *Source: Bureau of Mines* T.71

Index of Wholesale Price of Portland Cement Base Per Ton 1967 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	326.4	332.4	330.2	339.1	339.6	340.9	340.5	346.3	347.9	346.8	340.5	340.5	339.1
1984	337.3	345.0	354.6	351.5	357.0	352.8	353.5	355.9	354.1	353.2	356.5	358.8	352.5
1985	356.9	359.7	361.1	359.6	365.4	363.8	360.5	360.9	358.5	357.1	355.2	356.8	359.6
1986	360.5	360.7	360.4	360.4	355.0	353.4	351.0	350.1	351.5	351.6	348.8	341.8	353.8
1987[1]	344.9	346.9	345.8	346.8	348.8	347.3	348.7	345.5	347.0	346.6			

[1] Preliminary. *Source: Bureau of Labor Statistics* (1322-0131.99) T.74

Shipments of Finished Portland Cement from Mills in the United States In Millions of Barrels[3]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total[1]
1983	18.9	17.7	25.4	28.4	33.6	39.4	37.3	41.9	39.5	39.1	32.8	22.2	376.9
1984[2]	20.4	25.6	29.2	34.3	41.5	43.1	42.1	46.9	39.9	43.3	36.5	25.7	435.8
1985[2]	21.8	21.7	31.7	39.4	44.2	42.6	45.9	46.9	43.3	46.0	33.2	26.7	445.1
1986[2]	28.9	23.7	32.3	41.5	43.2	44.8	46.9	46.6	45.9	49.1	35.1	30.7	470.5
1987[2]	25.5	24.9	34.1	41.5	43.2	47.8	49.3	45.6	47.6				

[1] Does not necessarily agree with monthly figures. These are compiled from producers' annual reports and are final. [2] Preliminary. [3] A barrel is approx. 376 pounds. *Source: Bureau of Mines* T.73

Cheese

U.S. cheese production over the first eight months of 1987 was about 1 percent less than a year earlier. American cheese output was 1.9 billion pounds, down 6 percent. Production of other cheeses was up by over 8 percent, but cottage cheese fell by 4 percent. A factor which complicated analysis was the Dairy Termination Program (DTP) in 1986. Farmers were offered cash payments to give up dairying for five years. When the buyout program ended, milk output began increasing. While 1987 cheese output was off slightly from a year earlier, other manufactured dairy products declined even more, including butter, which was off almost 13 percent during January-August, and non-fat dry milk, which was down over 23 percent.

Commercial use of dairy products remained strong in 1987, apparently due to lower retail prices, economic growth, and heavy promotion. During the June-August period, commercial use of American cheese was up 10 percent. Over the first two quarters of 1987, disappearance of American cheese rose by 3 percent from the same 1986 period. Commercial disappearance of other cheeses was up by 6 percent in the same period. Commercial use of cheese was expected to increase in 1988 if retail prices remained favorable. Heavy promotion by the industry could also produce gains.

Commercial stocks of American cheese on September 1, 1987, were almost 344 million pounds, 3 percent less than 1986's low stocks. Stocks of other cheeses were close to 97 million pounds, 3 percent below a year earlier and 9 percent less than in 1985. Government stocks of American cheese on September 1, 1987, were 188.6 million pounds, down 67 percent from 1986.

Total Commodity Credit Corporation net removals of American cheese during the January-September period were 206 million pounds, 53 percent less than in the same period of 1986. Net CCC removals in 1988 were expected to be similar to 1987's level.

In late September and early October, wholesale prices of American cheese and butter dropped sharply, and the CCC started to buy significant quantities. This coincided with an October 1 reduction in support prices. USDA noted that the price decline was not easily explained and may just have been an overreaction to market softness. Milk output increased and commercial use remained fairly strong. Stocks of American cheese were low, which was supportive of prices. In third-quarter 1987, wholesale cheese prices at Wisconsin assembly points averaged 124.8 cents/lb. compared to 128.6 cents a year earlier. On October 1, the support prices for manufacturing-grade milk was reduced to $11.10/ hundredweight from $11.35. The support purchase price for American cheese was cut by 2.5 cents/lb. The support price for 40-pound blocks became $1.20/lb.

World Cheese (Total[1]) Production In Millions of Metric Tons

Year	Argentina	Australia	Brazil	Canada	Mexico	Czechoslovakia	Denmark	France	West Germany	Italy	Netherlands	New Zealand	USSR	Sweden	Switzerland	United Kingdom	United States
1980	245	154		177		109	221	1,146	421	615	443	106	648	101	125	237	1,807
1981	226	130	217	177	175	113	243	1,168	448	610	465	84	656	103	128	241	1,940
1982	229	153	220	170	230	120	245	1,200	446	645	481	112	699	108	129	244	2,060
1983	245	158	200	183	230	123	249	1,245	446	656	485	114	744	115	135	244	2,186
1984	239	161	200	192	188	130	293	1,287	465	661	515	110	780	116	130	245	2,120
1985	210	160	205	213	187	131	253	1,300	495	684	522	118	809	109	126	260	2,305
1986[2]	256	170	185	226	262	132	252	1,320	530	694	534	127	844	106	131	256	2,363
1987[3]	269	177	205	245	298	132	264	1,365	550	690	559	113	855	105	133	265	2,385

[1] Farm & factory production. [2] Preliminary. [3] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.75

Supply and Distribution of All Cheese in the United States In Millions of Pounds

	Supply						Distribution							
	Production											Domestic Disapp.		
Year	Whole Milk[2]	All Cheese[3]	Jan. 1 Commercial Stocks	Imports[4]	Total Supply	Cheese 40-Lb. Blocks Wisc. Assembly Points ¢ per lb.	Exports & Shipments[5]	Jan. 1 Stocks	Dec. 31 Stocks	Amer. Cheese Removed by U.S.D.A. Programs	Total Disap.	Military	Civilian	Civilian Per Capita
1980	2,376	3,984	513	231	4,728		46	3	169	350	4,038	16	3,976	17.6
1981	2,642	4,278	691	248	5,169	139.44	60	169	515	563	4,240	12	4,168	18.3
1982	2,752	4,542	976	269	5,677	138.27	100	515	647	643	4,722	15	4,607	20.0
1983	2,928	4,820	1,065	286	6,171	138.28	87	647	793	833	4,903	18	4,798	20.7
1984	2,648	4,674	1,266	306	6,246	137.96	108	793	621	447	5,184	18	5,058	21.6
1985[1]	2,855	5,081	1,062	303	6,441	127.72	125	621	544	629	5,501	18	5,358	22.6
1986[6]	2,798	5,209	945	296	6,450	127.30	99	544	420	468	5,661	18	5,544	23.2
1987[6]	2,800	5,300	789			125.00		420	250	300				

[1] Preliminary. [2] Whole milk American cheddar. [3] All types of cheese except cottage, pot and baker's cheese. [4] Imports for consumption. [5] Commercial. [6] Estimate. *Source: Department of Agriculture* T.76

CHEESE

Cheese Production in the United States In Millions of Pounds

Year	American			Swiss, Including Block	Munster	Baick	Limburger	Neufchatel	Cream Cheese	Italian Varieties	Blue mold	All Other Varieties	Total of All Cheese[2]	Cottage Cheese		
	Whole Milk	Part Skim	Total											Low-Fat	Curd[4]	Creamed[5]
1978	2,074	4.9	2,079	209.4	59.3	16.9	1.6	3.9	194.3	875.7	35.3	44.2	3,520	153.1	688.4	871
1979	2,190	4.4	2,194	213.3	63.6	14.4	1.6	5.2	207.1	929.1	34.6	54.1	3,717	150.4	668.5	840
1980	2,376	5.4	2,381	218.9	70.0	15.4	1.6	4.3	224.3	982.7	33.0	52.9	3,984	179.8	667.4	825
1981	2,642	5.9	2,664	214.4	67.4	13.9	1.2	241.3		994.4	30.2	66.6	4,278	208.3	647.5	773
1982	2,752	6.9	2,759	221.1	71.7	14.3	1.5	262.8		1,087.8	31.0	92.4	4,542	217.6	628.9	749
1983	2,928	4.1	2,932	209.5	69.6	14.2	1.1	270.0		1,200.2	31.5	90.6	4,820	215.9	618.2	743
1984	2,649	2.7	2,652	208.0	76.0	16.0	1.2	276.5		1,318.8	34.1	92.2	4,674	229.3	606.2	736
1985[1]	2,855	2.4	2,857	222.9	82.1	20.1	1.0	293.8		1,436.2	33.3	78.6	5,081	244.4	598.8	716
1986[3]	2,798	2	2,800	2,409									5,209			705
1987[3]	2,850	2	2,852	2,815									5,667			

[1] Preliminary. [2] Excludes full-skim cheddar and cottage cheese. [3] Estimated. [4] Includes cottage, pot, and baker's cheese with a butterfat content of less than 4%. [5] Includes cheese with a butterfat content of 4 to 19%. *Source: Economic Research Service, U.S.D.A.* T.77

Wholesale Price of Cheese, 40-lb Blocks, Wisconsin Assembly Points In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1978	122.9	124.1	124.6	125.9	125.9	125.9	126.0	132.1	134.0	139.4	140.0	141.0	130.1
1979	141.0	135.0	135.6	137.4	137.6	138.9	140.9	145.8	148.8	146.6	144.7	144.4	141.4
1980	146.7	147.2	150.8	153.5	154.2	154.8	155.5	157.0	161.5	165.3	164.1	164.1	156.2
1981	164.0	164.0	166.9	167.0	167.8	167.9	167.8	167.8	167.8	168.5	169.2	168.4	167.2
1982	168.4	168.4	168.4	168.4	168.4	168.4	168.4	168.4	168.3	168.6	168.6	168.6	168.4
1983	168.0	166.6	166.6	166.6	167.5	168.4	168.4	168.4	169.1	169.9	169.9	168.4	168.2
1984	168.9	168.9	168.9	168.9	168.9	168.8	170.0	172.1	175.9	174.4	169.9	169.1	170.4
1985[1]	136.5	134.3	132.1	129.9	128.0	126.8	124.7	124.3	124.3	124.3	123.8	123.9	127.7
1986	123.8	124.5	123.2	125.0	126.0	125.4	126.7	129.5	129.7	130.2	133.4	130.4	127.3
1987	127.8	122.5	122.3	122.4	122.0	122.0	123.2	125.5	125.6				

[1] Prices prior to Jan. 1985 are for American Cheese, fresh single daises at Chicago. *Source: Statistical Reporting Service, U.S.D.A.* T.79

United States Total Cheese Production[1] In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	271.1	259.9	314.4	303.7	332.9	331.9	293.6	286.5	265.0	279.3	279.7	301.4	3,520
1979	292.5	272.2	323.0	318.8	340.4	343.8	318.8	309.0	290.7	308.0	289.4	308.7	3,717
1980	312.3	303.1	339.7	336.6	360.5	359.9	332.7	317.6	317.0	332.1	317.2	354.4	3,984
1981	342.8	317.8	374.1	379.5	394.2	390.9	353.0	340.6	334.4	343.4	334.1	372.7	4,278
1982	351.3	331.0	391.7	1,203			1,121			1,143			4,542
1983	384.8	359.3	425.3	413.1	439.4	444.7	402.1	381.3	373.0	391.9	389.3	415.4	4,820
1984	382.1	366.0	412.3	409.9	432.9	415.4	379.9	371.2	357.8	381.1	368.9	396.3	4,674
1985[2]	390.6	355.3	411.5	423.8	451.1	441.3	429.3	422.7	399.6	428.0	411.8	437.5	5,081
1986[2]	425.9	398.7	462.7	459.5	482.5	457.4	433.6	421.7	410.1	410.2	401.0	439.4	5,209
1987[2]	413.6	400.9	455.9	458.3	484.7	463.8	458.1	423.5	427.0				

[1] Excludes cottage and full skim American. [2] Preliminary. *Source: Statistical Reporting Service, U.S.D.A.* T.78

Cold Storage Holdings of All Varieties of Cheese in the U.S., on First of Month In Millions of Pounds[2]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1978	468.6	459.6	442.0	430.0	447.1	462.5	500.2	498.5	489.7	476.6	455.2	431.0
1979	436.4	436.6	446.2	448.6	462.2	495.3	519.9	555.3	548.5	540.6	526.9	528.2
1980	512.1	515.8	508.9	495.1	510.5	544.4	582.7	620.0	613.8	610.6	590.9	565.4
1981	578.8	601.7	596.3	593.6	632.4	649.8	685.7	714.2	719.4	694.3	682.4	677.5
1982	709.6	711.7	696.4	722.4	—	—	803.9	—	—	864.3	—	—
1983	963.5	1,032	1,088	1,118	1,132	1,138	1,162	1,194	1,231	1,248	1,235	1,215
1984	1,205	1,201	1,220	1,217	1,182	1,208	1,193	1,186	1,148	1,115	1,078	1,044
1985[1]	986.2	968.9	944.4	907.7	898.6	911.0	954.2	963.5	962.9	941.0	891.8	877.5
1986[1]	852.9	835.8	813.2	815.7	838.4	873.3	892.8	915.6	916.2	859.0	805.0	757.0
1987[1]	693.6	680.8	652.9	645.9	645.7	670.1	659.1	644.9	606.1	580.5	525.0	

[1] Preliminary. [2] Quantities are given in "net weight." *Source: Crop Reporting Board, U.S.D.A.* T.80

Chromite

The U.S. is devoid of any mine production of chromite, and depends almost entirely on imports of either chromite or ferrocarbon steels. Chromite is the source of chromium, which is used to harden steel alloys and to produce stainless steel. There is a small amount of secondary U.S. production, and the Department of Defense, recognizing the country's vulnerability in this strategic metal, has been considering the possibility of a superalloy scrap recycling project.

Ferrochromium is a priority defense metal in the U.S., and its fabrication is mandated by law. For 1987 to 1993, Congress has required the annual upgrading of at least 53,500 tons of chromite into ferrochromium for the national strategic stockpile.

Domestic chromite consumption totaled 427,238 short tons in all of 1986. For the period Jan.-Aug. 1987, chromite consumption was 362,206 tons, for an implied annual rate of 543,309 tons, up 27 percent over 1986. Ferrochromium use for the eight-month period totaled 219,215 tons, for an implied annual 328,822 tons, down 15 percent from full-year 1986 usage of 388,496 tons.

Because of the strategic need for chromite and ferrochromium, political considerations with respect to trade have been put aside. About 322,496 tons of chromite of all purities were imported into the U.S. in the first eight months of 1987. Of this total, 152,515 tons, or 47 percent, came from South Africa. Implied annual chromite imports were 483,744 tons, one percent below 1986's total of 488,203 tons.

In the period Jan.-Aug. 1987, imports of ferrochromium were 219,215 tons, compared with full-year 1986 totals of 388,025 tons. The implied annual rate of 1987 ferrochromium imports was 328,822 tons, down 15 percent from 1986.

U.S. dependence on unreliable sources for this strategic material is illustrated by the import statistics for high-carbon ferrochromium. Three quarters of U.S. high-carbon ferrochromium is imported from South Africa, and in the Jan.-Aug. period, South Africa supplied 138,934 tons to the U.S. (for an implied annual total of 208,401 tons). Zimbabwe was next with 21,476 tons, and then Yugoslavia with 10,307 tons.

The same one-two ranking held for imports of low-carbon ferrochromium, with South Africa accounting for 13,346 tons of the same (Jan.-Aug.) period's total of 28,988 tons. Zimbabwe accounted for 5,420 tons. Turkey, the fourth largest supplier of high-carbon ferrochromium, was the third largest supplier of low-carbon ferrochromium with 3,891 tons in the Jan.-Aug. period.

World-wide resources of chromite ore amount to about 36 billion tons of shipping grade chromite, with over 99 percent located in southern Africa, and nearly 26 billion tons in South Africa alone. The rest of the world's resources are measured in millions of tons.

World Mine Production of Chromite In Thousands of Short Tons (Gross Weight)

Year	Albania	Brazil	Cuba	Finland	Greece	India	Japan	Pakistan	Philippines	Zimbabwe	Turkey	South Africa	Iran	USSR	Madagascar	World Total[1]
1979	827	375	31	480	50	342	13	3	613	597	410	3,634	150	2,535	141	10,277
1980	840	345	31	399	46	352	15	3	547	610	411	3,763	90	3,200	198	10,915
1981	783	261	23	454	27	369	12	2	484	591	442	3,164	35	3,200	110	10,018
1982	744	304	30	380	32	401	12	4	355	476	499	2,680	45	3,240	49	9,348
1983	755	171	37	271	30	397	9	7	294	463	381	2,762	55	3,240	50	9,063
1984	794	282	41	492	68	466	8	3	288	525	537	3,756	55	3,240	66	10,756
1985[2]	909	303	40	500	65	617	13	6	300	591	660	4,077	55	3,240	140	11,630
1986[1]	940	315	51	500	68	680	12	5	202	600	660	3,840	55	3,250	110	11,394

[1] Estimate. [2] Preliminary. *Source: Bureau of Mines* T.81

U.S. Salient Statistics of Chromite In Thousands of Short Tons

Year	% Net Import Reliance of Apparent Consumption	Shipments from Gov't Stockpiles	Exports	Imports (For Consumption)	Reexports	Consumption by Primary Consumer Groups (Gross Weight) Total	Metallurgical	Refractory	Chemical	Consumer Stocks, Dec. 31 Metallurgical	Refractory	Chemical	Total Stocks	$ Per Metric Ton South Africa[2]	Turkish[4]
1979	90	—	27	1,024	28	1,214	774	198	242	416	161	330	907	56	110
1980	91	—	6	982	44	977	577	160	240	219	135	322	675	55	110
1981	90	—	71	898	67	889	503	148	238	230	128	370	728	55	110
1982	85	—	8	507	57	558	283	80	195	120	113	313	546	52	110
1983	76		11	190	5	320	64	72	184	140	76	239	456	52	110
1984	80		55	305	4	512	226	97	189	24	70	233	327	52	110
1985	75		101	414	4	560	273	65	222	44	49	207	300	42	125
1986[1]	82		92	488	1	427		50			39		314	42	125
1987[3]			87	520		550					21		334		

[1] Preliminary. [2] Cr_2O_3, 44% (Transvaal). [3] Estimate. [4] 48% Cr_2O3. *Source: Bureau of Mines* T.82

Coal [redacted]

U.S. coal production increased nearly 2 percent in 1987 to a record 906.9 million short tons, and was forecast to increase by almost 1 percent to 912.6 million tons in 1988, according to the Department of Energy (DOE). Consumption at electric utilities was expected to increase by 11 million tons in 1987 and by 19 million in 1988. But the coal-fired capacity utilization rate was forecast to rise only slightly. Nevertheless, consumer inventories were expected to peak in December 1987 at 184 million tons, approximately an 80-day supply, in anticipation of the expiration of the United Mine Worker's Union contract in January 1988. In contrast, consumer inventories totaled 208 million tons in September 1984, ahead of the previous contract's expiration.

The DOE was expecting 1987 exports to fall almost 7 percent from the 85.5 million tons shipped in 1986, because of increasing competition in world markets. For 1988, exports were forecast to rebound to 84 million tons. Metallurgical coal represented 70 percent of U.S. exports through the first half of 1987 and was expected to continue to be the mainstay of U.S. exports. Principal customers for metallurgical coal included Japan, Canada, Italy, Brazil and Taiwan.

Coal is produced and marketed by a large number of private firms in highly competitive markets in the U.S. and abroad. In the U.S., there are about 5,000 mines operated by about 1,000 companies. The relative share of production from surface mining and from mines west of the Mississippi is continuing to increase.

World Production of All Coal[3] In Millions of Metric Tons

Year	Australia	East Germany	Canada	Czechoslovakia	France	West Germany	Greece	India	Japan	China	Poland	South Africa	United Kingdom	United States	U.S.S.R.	Yugoslavia
1984	160	296	57	129	21	212	32	152	17	736	242	163	51	808	635	65
1985[2]	176	312	61	127	19	209	36	157	16	813	249	173	89	804	648	68
1986[1]	195	311	57	128	17	201	38	171	16	828	259	177	108	788	673	57

[1] Estimate. [2] Preliminary. [3] Includes anthracite, subanthracite, bituminous, subbituminous, lignite & brown coal. *Source: United Nations.* T.83

Bituminous Coal Production[1] in the United States In Millions of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	67.9	73.7	81.6	71.7	79.8	75.3	73.9	89.7	78.0	68.6	63.4	62.6	891.8
1985	67.9	66.9	77.3	76.2	78.0	72.7	68.8	79.2	73.6	79.7	68.9	69.6	878.9
1986[2]	78.3	72.7	77.6	74.9	73.1	72.7	67.8	75.9	74.4	79.4	69.8	73.2	886.0
1987[2]	74.3	71.3	75.4	70.8	69.8	76.9	70.4	79.7	81.3				

[1] Includes small amount of lignite. [2] Preliminary. *Source: Bureau of Mines* T.88

Pennsylvania Anthracite Coal Production[1] In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	284	249	278	228	377	293	384	435	423	349	332	323	4,162
1985	340	336	397	300	403	506	407	409	381	447	386	396	4,708
1986[2]	261	243	260	300	294	297	298	381	384	479	415	378	4,292
1987[2]	256	264	305	287	282	304	271	281	281				

[1] Represents production in Pennsylvania only. Production outside which is small, is included in Bituminous Production series. [2] Preliminary. *Source: Bureau of Mines* T.92

U.S. Stocks of Bituminous Coal for All Industrial & Retail Dealers, at End of Month In Million Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	156.4	163.0	167.7	175.3	184.7	187.4	186.0	193.5	201.3	200.4	195.3	190.4
1985	176.8	170.3	172.6	178.0	180.6	180.9	172.1	168.9	168.9	172.8	170.4	163.0
1986[1]	158.1	156.5	159.2	166.3	170.2	168.8	155.6	155.0	157.7	163.1	167.0	168.1
1987[1]	162.7	163.3	166.0	169.5	170.8	168.8						

[1] Preliminary. *Source: Bureau of Mines* T.87

Average Wholesale Price of Bituminous[1] Coal (Screenings, Industrial Use) (1967 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	538.1	541.5	543.1	538.9	544.4	541.1	545.1	547.0	546.1	545.9	545.6	544.6	543.5
1985	544.8	546.4	545.6	544.5	545.1	544.3	546.7	547.0	545.6	540.4	534.2	537.1	543.5
1986[2]	537.7	535.4	538.3	536.5	535.6	535.1	535.2	534.4	533.6	533.1	530.9	530.4	534.7
1987[2]	530.8	526.6	525.0	515.4	513.5	511.9	512.6	511.1	508.4	507.0			

[1] Prices are for Screenings, industrial use, f.o.b. mine. [2] Preliminary. *Source: Bureau of Labor Statistics (0512)* T.90

Salient Statistics of the Bituminous Coal Industry in the United States

Year	Production: Underground (Millions Net Tons)	Production: Surface (Millions Net Tons)	Production: Total Production (Millions Net Tons)	Value: Total Million $	Value: Avg. Per Ton $	Number of Mines	Thous. of Men Employed	Avg. Tons Per Miner Per Hour: Underground	Avg. Tons Per Miner Per Hour: Surface	Avg. Tons Per Miner Per Hour: Total	Imports	Exports to: Grand Total	Exports to: Canada	Exports to: Europe	Exports to: Asia
											(Thousands of Short Tons)				
1981	316	503	818	21,505	26.29	5,569	226.3	1.29	3.50	2.11	1,043	110,243	17,856	56,130	31,010
1982	338.6	495.0	833.5	22,621	27.14	5,363	214.4	1.37	3.48	2.14	742	105,244	18,205	51,211	29,957
1983	299.9	478.1	778.0	20,111	25.85	4,265	173.5	1.62	3.87	2.52	1,271	76,870	16,809	32,979	21,895
1984	351.5	540.3	891.8	22,750	25.51	4,902	175.7	1.72	4.10	2.65	1,286	80,793	20,140	32,766	21,306
1985[1]	350.1	528.9	878.9	22,060	25.10	4,547	167.0	1.79	4.32	2.76	1,952	91,361	16,112	44,677	21,803
1986[2]	359.8	526.2	886.0								2,212	84,017	14,031	42,488	18,765

[1] Preliminary. [2] Estimate. *Source: Energy Information Administration* T.84

United States Production of Coal by Principal States In Millions of Short Tons

Year	Anthracite Pennsylvania	Bituminous: Alabama	Colorado	Illinois	Indiana	Kentucky	Montana	Ohio	Pennsylvania	Virginia	West Virginia	Texas	Wyoming	Total Bituminous	Total U.S.
1981	5.4	24.5	19.9	51.9	29.3	157.6	33.6	37.4	78.1	42.0	112.8	32.8	103.0	818.4	823.8
1982	4.6	26.6	18.3	60.3	31.8	150.2	27.9	36.5	74.8	39.8	128.5	34.8	108.4	833.5	838.1
1983	4.1	23.8	16.7	56.8	31.8	131.2	28.9	33.8	65.7	35.0	115.0	38.9	112.2	778.0	782.1
1984	4.2	27.1	18.0	63.8	37.6	159.5	33.0	39.3	73.3	40.4	131.0	41.1	130.9	891.8	895.9
1985	4.7	27.8	17.2	59.2	33.3	152.3	33.3	35.6	66.7	40.9	127.8	45.5	140.7	878.9	883.6
1986[2]	4.3	25.8	15.2	61.9	32.9	153.9	34.0	36.4	67.4	41.2	129.9	48.6	136.8	886.0	890.3
1987[1]	3.7	26.2	14.9	60.2	33.7	163.6	32.8	35.5	70.2	41.9	129.6	51.2	143.5	903.2	906.9

[1] Estimate. [2] Preliminary. *Source: Bureau of Mines* T.85

U.S. Consumption & Stocks of Bituminous Coal & Lignite In Millions of Short Tons

Year	Stocks—Dec. 31: Electric Power Utilities	Oven Coke Plants	Steel & Rolling Mills	Other Industrials	Producers & Distrib.	Total	Consumption: Electric Power Utilities	Coke Plants: Beehive	Coke Plants: Ovens	Steel & Rolling Mills	Other Industrials	Retail Deliveries[2]	Total
1981	163.4	6.4	9.8		23.8	203.4	595.6	60.9		66.6		5.4	728.5
1982	175.1	4.6	9.4		36.1	225.2	592.6	40.9		63.5		6.6	703.6
1983	149.1	4.3	8.6		33.4	195.4	624.2	37.0		65.6		7.1	733.9
1984	173.0	6.2	11.2		33.5	223.9	663.3	44.0		73.2		7.7	788.2
1985[3]	149.2	3.4	10.4		32.7	195.7	692.8	41.0		74.8		6.5	815.1
1986[3]	154.7	3.0	10.4		31.6	199.7	684.2	36.0		75.2		6.4	801.8

[1] Preliminary. [2] To other consumers. (Residential & Commercial) [3] Estimate. *Source: Energy Information Administration* T.86

Statistical Trends in the Pennsylvania Anthracite Industry

Year	Production (Millions of Net Tons): Total	Surface	Underground	Value of Production Million $	Avg. Value Per Net Ton	Stocks (Dec. 31): Electric Utilities	Stocks (Dec. 31): Prod. & Distrib.	Exports to: Total	Canada	France	Netherlands	South Korea	Apparent Consumption	Avg. No. of Men Working Daily (1,000)	Number of Mines	Avg. Tons Per Miner Per Hr.
						(1,000 Short Tons)										
1981	5.4	4.8	.6	239.1	44.28	5,537	370	2,249	361	77	22		4,084	3.1	232	.92
1982	4.6	4.0	.6	229.3	49.85	6,080	672	980	316	57	—	550	3,349	2.7	220	.59
1983	4.1	3.6	.5	214.4	52.29	6,507	498	776	296	58	30	357	2,823	2.1	224	1.01
1984	4.2	3.6	.6	202.5	48.22	6,710	565	680	301	—	52	292	3,088	2.1	149	1.02
1985[1]	4.7	4.0	.7	215.3	45.80	7,189	416	1,286	277	19	32	535	2,917	2.3	217	1.05
1986[2]	4.3	3.7	.6			7,099	512	1,460	437	—	8	868	2,566			

[1] Preliminary. [2] Estimate. *Source: Energy Information Administration* T.91

Average Wholesale Price of Anthracite Coal (Chestnut—F.O.B. Mine) Index—1967 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.	Average
1982	643.7	643.7	645.5	648.1	639.0	637.5	637.5	637.4	637.4	637.4	638.0	638.0	640.3
1983	636.0	635.9	634.2	621.7	603.1	605.1	613.3	610.4	610.4	610.4	612.0	612.3	617.1
1984	612.2	612.0	611.2	610.4	611.1	610.8	610.8	610.8	610.8	610.8	610.2	614.7	611.3
1985	615.0	615.0	615.0	614.9	614.9	614.8	614.8	614.8	615.2	615.5	622.9	622.9	616.3
1986[1]	645.9	646.4	646.4	635.1	635.1	636.1	635.8	635.5	635.5	635.5	635.7	539.6	638.5
1987[1]	640.8	640.8	640.8	636.6	636.7	636.7	639.1	639.1	641.0	642.9			

[1] Preliminary. *Source: Bureau of Labor Statistics (0511-0101.02)* T.89

Cobalt

The U.S. is entirely dependent on the outside world for its cobalt supplies. The last U.S. cobalt mine closed in 1971, and there has been no domestic refining since 1985. The world's leading cobalt producers, and the major U.S. suppliers, are Zaire, Zambia, and Canada.

Cobalt is interesting to examine because beyond its statistics lie politics and echoes of central Africa's colonial past, the vestiges of which still appear. In 1987, these elements were evident in an effort by Zambia, Zaire, and war-torn Angola to revive the Benguela railway, closed for twelve years by the civil war in Angola. This halting step in interregional cooperation was brought about in self-defense, as South Africa announced in 1987 that it would exercise greater control over raw materials passing through that country for export.

The railway, 90 percent owned by Societe Generale de Belgique, was once the main transport for cobalt and copper exports by Zaire and Zambia. The Benguela runs 800 miles from Zambia's northern copper belt, through Zaire's cobalt-producing Shaba province and into the Angolan port of Lobito. The three countries plan a new company to repair and operate the revitalized line.

Also, the nine-member Southern African Development Corporation Conference began to look for financial support to upgrade the Tanzania-Zambia railway. The line, which is a main shipping route, terminates in Dar es Salaam, Tanzania.

U.S. consumption of cobalt metal, oxide, other chemical compounds, and scrap for the first six months of 1987 totaled 7.551 million pounds , up 18 percent over the year-earlier level of 6.373 million. This implies full-1987 consumption of 15.1 million pounds, or a possible gain of 5 percent over 1986's full-year total of 14.4 million pounds.

In the first eight months of 1987 (Jan.-Aug.), U.S. imports of cobalt for consumption totaled 15.49 million pounds, for an implied annual 23.24 million pounds, which would be up 89 percent over 1986's total.

While the increase in imports appears excessive, it's worth noting that cobalt imports from Zaire in January 1987 totaled 4.6 million pounds alone. This partly reflected the decision by Zaire in 1987 to assure itself a continuing stream of foreign exchange by moving its supplies into consumer hands (preventing supply line disruption in the event that transport through South Africa was interrupted).

While world production figures for 1987 were unavailable, 1986 world mine production was estimated at 35 million short tons. World cobalt resources are pegged at about 12 million tons. The vast majority of these resources are located in nickel-bearing laterite deposits, and most of the rest are in nickel-copper sulfide deposits and in sedimentary copper deposits in Zaire and Zambia.

Other than nickel, there are few adequate substitutes for cobalt.

World Mine Production of Cobalt In Short Tons of Recovered Cobalt Content

Year	Australia	Zaire	USSR	France	Canada	Cuba	Philippines	Finland	W. Germany	Japan[3]	Norway[3]	Morocco	Zambia	New Caledonia	World Total
1980	2,177	17,000	2,300	745	1,767	1,778	1,467	1,141	330	3,160	1,405	924	4,850	395	34,538
1981	1,616	17,000	2,400	493	2,293	1,890	1,099	1,140	160	2,669	1,592	870	4,410	407	33,895
1982	1,631	12,450	2,550	626	1,548	1,653	514	1,141	165	2,141	1,092	873	3,584	299	27,081
1983	1,270	12,450	2,650	144	1,746	1,787	182	1,141	0	1,511	969	—	3,526	440	26,149
1984	1,190	19,850	2,850	128	2,563	1,540	71	1,047	0	998	1,313	—	5,093	550	35,880
1985[2]	915	22,050	3,000	120	2,278	1,565	1,004	1,050	0	1,407	1,804	—	6,393	745	40,115
1986[1]	970	22,050	3,100	110	2,745	1,550	100	1,050	—	1,475	1,740	—	6,350	770	39,850

[1] Estimate. [2] Preliminary. *Source: Bureau of Mines* T.93

U.S. Salient Statistics of Cobalt In Thousands of Pounds of Contained Cobalt

					Consumption By End Uses											
Year	Net Import Reliance as a % of Apparent Consumption	Cobalt Pdt's Production	Consumer Stocks Dec. 31	Imports for Consumption	Steel Full Alloy	Stainless & Heat Resisting	Catalysts[4]	Super-Alloys	Tool Steel	Magnetic Alloys	Nonferrous Alloys	Drier in Paints, etc.[5]	Cutting & Wear-Resistant Mater.	Welding & Hard Facing Rods	Total	Price $ Per Pound[3]
1980	93	3,274	2,540	16,302	116	47	1,656	6,285	321	2,267	150	1,331	1,344	620	15,321	25
1981	92	3,302	1,411	15,594	141	35	1,279	4,195	170	1,687	131	1,378	1,076	488	11,680	14.58
1982	92	2,863	1,327	12,870	114	51	789	3,319	161	1,544	175	1,114	638	446	9,468	8.56
1983	95	3,232	1,441	17,221	82	54	1,064	4,034	248	1,711	169	1,503	666	472	11,319	5.76
1984	95	3,499	1,368	25,310	31	74	1,296	4,766	353	2,209	176	1,258	831	399	12,994	10.40
1985[1]	94	2,876	1,131	17,708	N.A.	61	1,253	6,380	203	1,455	N.A.	1,139	1,017	N.A.	13,541	11.43
1986[2]	92	2,420	1,479	12,288	N.A.	76	1,445	6,446	256	1,791	N.A.	1,593	726	N.A.	14,442	7.49
1987[2]			1,455	18,000											12,500	6.75

[1] Preliminary [2] Estimate. [3] Annual spot for cathodes. *Source: Bureau of Mines* T.94

Cocoa

Cocoa was a spectacular bear market in late 1987, with prices plunging hundreds of dollars a tonne on many occasions because of disappointment over the inability of the International Cocoa Organization (ICCO) to arrive at a workable agreement. Currency factors, notably weakness in the U.S. dollar, also had an impact on cocoa prices, causing more pressure in London, where the market is traded in pounds sterling, than in New York, the dollar market. Moreover, cocoa was in a surplus production/consumption situation, as it had been since 1982, and price weakness was not unexpected.

USDA forecast world cocoa production for the 1987/88 (Oct.-Sept.) crop year at a record 2.06 million tonnes, four percent higher than 1986/87's 1.97 million tonnes. Production problems in Ghana and the Ivory Coast and drought damage in Brazil had less of an impact than had been expected. On a worldwide basis, cocoa production was expanding, and new plantings in Austral-Asia were expected to put that area into the forefront of international cocoa business.

World cocoa bean grindings in 1987/88 were estimated at an all-time high of 1.9 million tonnes, but were still not enough to overtake expanding production. According to USDA, if 1987/88 estimates of global production and consumption were realized, a stock increase of 109,000 tonnes could be expected, following a 61,000-tonne rise in 1986/87. Based on annual grinding rates, the world stock carryover at the end of the 1987/88 season was projected to reach an excessive five-month supply.

The ICCO buffer stock contained 100,000 tonnes of cocoa when 1987 began. The buffer stock manager bought 75,000 tonnes in May and June 1987 in an attempt to support prices. When a new agreement was implemented, the buffer stock manager was authorized to purchase another 75,000 tonnes, which he did in January and February 1988. This brought the total in the buffer stock to its ICCO ceiling of 250,000 tonnes. But since the cocoa has to be rotated periodically to prevent spoilage, the buffer stock is not completely isolated from the market. In any case, buffer stock buying failed to help prices much because of the pressure from origin hedge selling.

Switzerland continued to have the world's highest per capita consumption rate for cocoa and chocolate products, according to USDA. On a bean-equivalent basis, the Swiss averaged 4.1 kilograms per capita during the first six years of this decade. Belgium-Luxembourg was second in usage, followed by Austria and West Germany. The U.S. averaged only about 1.8 kilograms and the Soviets only 0.7 kilograms. Although the U.S. is not the world's leader in per capita consumption, it is the largest importer, accounting for more than 25 percent of world cocoa trade.

U.S. third-quarter 1987 cocoa bean grindings were up more than 18 percent over the same 1986 period. Total nine-month grindings were 135,991 tonnes, 20 percent more than in the same period in 1986. (Since 1984, U.S. data have excluded reporting by one major processor.) Imports of cocoa beans during July-August 1987 were up nearly nine percent over the similar 1986 period to 165,493 tonnes.

Cocoa is often sold in the form of semi-processed products, notably cocoa liquor, butter, powder, and cocoa presscake. Finished cocoa beans that are ground into a liquid mass are called cocoa liquor. Cocoa butter is the fat from the rolled and pressed cocoa liquor, which is mixed with cocoa liquor to make lighter milk chocolate. And powder is used for drinks and some chocolate substitutions.

Nearby cocoa futures in New York began 1987 at $1,900/tonne, and reached a high for the year of over $2,100/tonne on concerns about adverse weather for crops in West Africa and Brazil. Subsequently, the market retreated considerably, with the nearby futures contract ending the year at around $1,800.

Futures Markets

Cocoa futures are actively traded on the Coffee, Sugar and Cocoa Exchange in New York and on the London Terminal Market.

World Cocoa Supply and Demand In Thousands of Metric Tons

Crop Year[1]	Stocks Oct. 1	Net World Crop[2]	Total Availability	Seasonal Grindings	Closing Stocks	Stock Change
1978–9	390	1,478	1,868	1,457	411	+ 21
1979–0	411	1,611	2,022	1,488	534	+123
1980–1	534	1,644	2,178	1,592	586	+ 52
1981–2	586	1,718	2,304	1,600	704	+118
1982–3	704	1,509	2,213	1,620	593	− 111
1983–4	593	1,498	2,091	1,720	371	− 222
1984–5	371	1,925	2,296	1,799	497	+126
1985–6[3]	497	1,943	2,440	1,835	605	+108
1986–7[3]	605	1,937	2,542	1,884	658	+ 53
1987–8[4]	658	2,031	2,689	1,954	735	+ 77

[1] Crop year season is Oct.-Sept. [2] The Net World Crop is obtained by adjusting the Gross World Crop for one percent loss in weight. [3] Preliminary. [4] Forecast. *Source: Gill and Duffus, Ltd.*

T.95

COCOA

World Production of Cocoa Beans in Principal Producing Countries In Thousands of Metric Tons

Crop Year (Oct.–Sept.)	Brazil	Cameroon	Colombia	Dominican Rep.	Ecuador	Equatorial Guinea[1]	Ghana	Indonesia	Ivory Coast	Malaysia	Mexico	Papua New Guinea	Nigeria	Sierra Leone	Togo	Venezuela	World Total
1980–1	351	120	36	33	85	8	258	13	417	49	30	27	160	10	16	14	1,694
1981–2	315	120	39	43	88	8	225	17	465	61	41	29	18[illegible]	9	11	15	1,737
1982–3	339	106	40	43	55	9	179	20	360	68	34	29	1[illegible]	10	10	15	1,545
1983–4	309	109	41	42	55	9	159	23	411	90	35	28	125	9	21	12	1,545
1984–5	415	120	42	39	128	9	175	32	565	100	42	31	170	11	7	11	1,966
1985–6	375	119	44	39	112	9	219	36	580	130	39	33	130	9	10	11	1,963
1986–7[3]	355	125	46	42	70	8	225	38	590	165	39	30	100	8	10	13	1,935
1987–8[2]	400	120	52	39	85	8	225	40	590	185	37	30	115	8	10	14	2,029
1988–89																	

[1] Includes Fernando Po & Rio Muni. [2] Forecast. [3] Preliminary. *Sources: Foreign Agricultural Service, U.S.D.A.* T.96

World Absorption (Consumption) of Cocoa[2] In Thousands of Metric Tons

Year	Japan	Australia	Belgium	Brazil	Canada	Colombia	France	W. Germany	Netherlands	Spain	Italy	Switzerland	USSR	United King	United States	World Total
1980	25	11	23	200	12	31	48	158	133	35	34	17	130	65	142	1,510
1981	29	12	29	195	17	35	52	167	141	37	35	18	120	85	190	1,599
1982	32	9	29	170	16	38	52	175	148	37	39	18	130	88	199	1,607
1983	34	8	33	198	16	39	53	180	157	38	36	18	145	77	194	1,652
1984	34	6	36	214	22	33	52	194	161	35	40	19	150	90	209	1,750
1985	34	2	36	234	21	39	42	207	167	39	47	20	155	91	205	1,835
1986[1]	36	1	35	225	20	41	39	201	183	39	40	20	155	87	200	1,835
1987[3]	36	1	35	220	18	41	38	206	194	40	42	21	165	96	238	1,900
1988																

[1] Preliminary. [2] Figures represent the "absorption," "disappearance" or "grindings" of cocoa beans in each country—in other words, net imports of cocoa beans adjusted for changes in stock. [3] Estimate. *Source: Gill & Duffus, Ltd.* T.98

Raw Cocoa Grindings in Selected Countries In Thousands of Metric Tons

Year	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
	France					Germany (West)					Holland				
1980	43.1	12.5	10.9	9.1	10.7	151.2	40.2	35.4	32.9	42.6	132.6	35.1	31.4	29.5	36.7
1981[1]	47.0	12.6	12.0	9.6	12.9	159.4	41.7	37.6	35.4	44.7	141.0	36.0	34.3	32.7	38.0
1982	45.5	13.1	12.3	9.7	10.4	167.0	45.1	39.9	35.8	46.3	148.4	38.4	34.9	33.7	41.3
1983	47.6	12.2	12.9	10.9	11.7	179.5	45.7	41.0	43.0	49.8	156.9	40.5	37.9	35.2	43.4
1984	47.2	14.0	12.5	11.1	9.7	193.5	49.9	48.6	42.4	52.6	161.4	44.4	40.0	35.0	42.1
1985	42.5	12.4	10.6	8.3	11.2	206.8	57.0	51.7	44.0	54.0	167.4	44.6	41.7	37.0	44.1
1986	39.4	10.9	10.6	8.2	9.7	201.0	53.6	50.6	42.6	54.2	182.6	46.2	45.1	40.3	51.0
1987[1]							55.2	49.2	46.4			49.1	47.3	42.8	
1988															
	Italy					United Kingdom					United States				
1980	33.8	8.0	8.4	8.1	9.3	65.3	15.5	16.1	15.5	18.2	142.2	33.5	31.5	34.9	42.4
1981	35.1	8.6	8.1	5.8	12.6	85.3	21.7	21.3	19.2	23.1	190.2	48.4	46.0	48.8	47.1
1982	39.2	9.6	10.1	6.0	13.6	88.1	25.3	21.1	19.6	22.1	199.1	47.7	50.6	50.1	50.7
1983	36.4	8.4	7.9	8.1	12.0	76.7	19.8	18.1	17.4	21.3	193.6	45.9	46.7	47.8	53.2
1984	39.8	8.0	5.6	9.8	16.5	89.6	22.3	21.9	21.1	24.2	164.4	42.4	41.6	40.9	39.5
1985	47.4	11.1	10.5	8.8	17.0	91.3	26.5	24.5	20.0	20.3	153.8	39.0	37.5	40.5	36.8
1986	39.7	10.9	9.1	7.8	12.0	87.2	21.1	22.0	20.1	24.0	153.6	33.8	37.0	42.3	40.6
1987[1]		11.3	9.8				24.5	22.9	22.4			39.7	46.6	49.9	

[1] Preliminary. *Source: Gill and Duffus, Ltd.* T.97

Imports of Cocoa Butter—Selected Countries In Metric Tons

Year	South Africa	Australia	Austria	Belgium	Canada	Finland	France	West Germany	Italy	Japan	Netherlands	Norway	Sweden	Switzerland	UK	USA	USSR	Yugoslavia
1980	1,007	4,532	2,485	12,388	3,717	2,057	14,285	22,790	1,211	6,264	16,445	1,855	4,155	9,117	29,597	34,658	—	1,054
1981	1,444	4,410	3,461	11,960	4,505	2,228	14,170	29,358	1,667	10,352	11,021	1,875	4,234	10,208	19,549	43,196	—	1,965
1982	1,464	5,419	3,382	12,281	4,860	2,333	14,008	30,564	1,631	10,615	16,225	2,083	4,451	9,982	25,820	37,325	—	1,009
1983	1,270	6,067	3,535	12,128	5,313	2,428	16,690	30,581	2,151	9,947	20,224	1,892	4,704	10,224	31,581	47,981		653
1984	1,699	6,445	3,763	13,451	5,437	2,156	17,325	35,241	2,337	8,436	25,072	2,139	5,103	9,798	30,203	51,711	4,200	248
1985	1,792	8,538	3,682	15,416	5,535	2,039	19,908	33,378	3,056	8,632	24,595	1,957	4,929	11,175	31,372	70,146	7,150	1,130
1986[1]	N.A.	8,204	4,387	13,793	5,377	1,966	19,397	25,513	3,248	8,474	14,925	2,295	4,866	11,369	32,669	70,264	3,450	N.A.
1987[2]		9,000	4,000	13,000	5,200	1,850	23,000	25,400	2,700	9,800	15,800	2,800	4,700	11,700	30,800	78,000		

[1] Preliminary. [2] Estimate. *Source: Gill & Duffus Group PLC* T.97a

Imports of Cocoa Liquor and Cocoa Powder (Selected Countries) In Metric Tons

	Cocoa Liquor							Cocoa Powder								
Year	France	West Germany	Netherlands	Japan	UK	USA	USSR	Belgium	France	West Germany	Italy	Japan	Netherlands	Sweden	UK	USA
1978	16,282	741	3,901	1,883	3,859	43,679	—	3,079	3,529	6,912	3,955	1,558	2,096	2,469	1,022	79,263
1979	15,872	795	4,136	2,129	4,784	47,828	5,000	3,642	4,368	10,846	5,266	2,215	2,970	2,656	1,747	64,080
1980	15,688	1,922	7,634	2,927	1,928	43,796	5,200	3,335	5,905	10,693	6,142	2,656	3,018	3,457	1,885	65,606
1981	15,457	2,151	9,262	3,499	1,914	33,109	16,000	3,503	7,963	12,935	6,478	2,616	3,255	3,551	2,393	77,879
1982	13,871	2,196	13,519	3,684	2,283	31,419	8,700	3,770	7,609	13,524	6,673	2,832	2,974	3,872	3,284	60,563
1983	15,164	2,288	14,216	4,303	3,829	45,477	15,425	3,895	8,527	13,886	7,964	3,157	3,009	3,806	3,014	78,968
1984	20,268	3,075	13,622	2,928	2,184	45,547	32,000	4,204	9,652	13,554	7,462	3,260	3,574	3,996	3,654	89,978
1985	24,031	3,570	14,822	2,792	3,400	53,042	37,510	4,586	8,269	16,624	8,313	3,841	4,669	3,928	2,591	81,775
1986[1]	28,426	2,006	10,915	3,346	4,091	50,705	30,110	4,844	8,984	15,654	9,059	4,844	4,669	3,980	3,258	89,454
1987[2]	30,900	2,000	8,200	3,300	2,000	40,000		5,000	9,000	16,000	10,200	5,000	3,300	3,800	3,900	98,000

[1] Preliminary. [2] Estimate. *Source: Gill & Duffus Group PLC* T.97b

United States Imports of Cocoa (Includes Shells) In Thousands of Long Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	19.4	20.3	27.9	20.5	16.5	12.4	16.1	14.7	7.3	15.9	18.6	20.2	209.7
1979	27.3	26.7	14.6	12.8	8.8	13.7	11.8	15.7	5.7	10.1	10.0	8.0	165.2
1980	11.1	9.2	8.0	19.5	15.4	12.0	16.9	9.6	8.2	9.6	9.4	19.9	148.5
1981	13.5	27.8	19.2	30.4	27.1	24.1	19.3	22.0	20.3	24.1	5.8	11.5	245.0
1982	10.0	29.0	17.6	15.3	16.8	11.9	13.0	20.3	14.3	14.4	14.4	17.4	194.2
1983	46.0	42.7	19.0	36.4	14.4	11.1	9.6	7.2	6.1	5.3	7.7	8.2	181.0
1984[1]	15.5	21.3	28.7	16.9	24.7	15.3	13.3	10.8	10.4	5.0	10.8	18.2	190.9
1985[1]	42.2	43.7	39.1	9.9	30.5	15.6	13.9	12.5	10.9	10.2	12.6	25.0	266.1
1986[1]	29.4	17.1	15.1	9.3	19.0	16.1	21.2	22.5	11.8	7.8	14.9	17.2	201.5
1987[1]	26.1	28.0	22.8	30.5	20.6	10.2	10.6	14.0	5.6				

[1] Preliminary. *Source: Department of Commerce* T.102

Bahia (Brazil) Crops In Thousands of Bags of 60 Kilos

Year	Total Crop Brazilian Crop Year	Temporao Brazilian Crop Year	Main-Mid March (Arrivals)	Main Crop (Oct.-Apr.)	Temporao International Crop Year	Total Crop International Crop Year
1978–79	4,329	2,524	1,762	1,805	3,129	4,934
1979–80	5,387	3,129	2,158	2,257	2,383	4,640
1980–81	5,041	2,383	2,646	2,658	2,892	5,550
1981–82	4,609	2,892	1,718	1,718	3,170	4,888
1982–83	5,284	3,170	2,114	2,114	3,084	5,198
1983–84	5,876	3,084	2,792	2,792	1,786	4,578
1984–85	5,030	1,786	3,244	3,244	3,126	6,370
1985–86[1]	6,027	3,126	2,901	2,901	2,774	5,674
1986–7[1]	6,623	2,774	3,849	3,849	1,546	5,395

[1] Preliminary. *Source: Gill & Duffus Group PLC* T.102a

COCOA

New York Cocoa Bean Futures[1] Prices In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1978	165.0	140.0	178.0	179.0	170.0	155.0	161.0	175.0	189.0	183.0	199.0	196.0	174.2
1979	193.0	177.0	176.0	157.5	165.0	172.0	158.0	157.0	166.0	159.0	154.5	155.0	160.4
1980	163.8	173.5	157.0	147.0	135.0	125.3	134.5	120.0	122.0	119.0	120.0	108.0	135.4
1981	109.5	110.0	112.0	115.0	104.0	89.0	108.5	112.0	117.0	113.0	103.0	109.0	108.5
1982[2]	95.6	89.6	83.8	75.2	73.3	66.2	66.1	66.0	71.6	70.8	64.8	69.6	74.4
1983	77.6	83.9	80.1	81.4	89.8	99.8	99.6	99.7	93.0	91.3	97.1	112.0	92.1
1984	115.2	110.8	113.0	112.8	118.8	108.2	97.1	98.6	104.3	99.8	100.6	95.5	106.2
1985	98.3	100.0	98.9	101.6	96.1	91.5	95.7	98.2	101.3	102.5	97.9	102.0	98.7
1986	100.6	95.5	91.0	84.9	81.4	81.4	87.6	89.1	95.6	90.6	87.4	85.6	89.2
1987	86.1	84.8	87.2	89.9	89.8	87.0	92.9	88.7	87.1				

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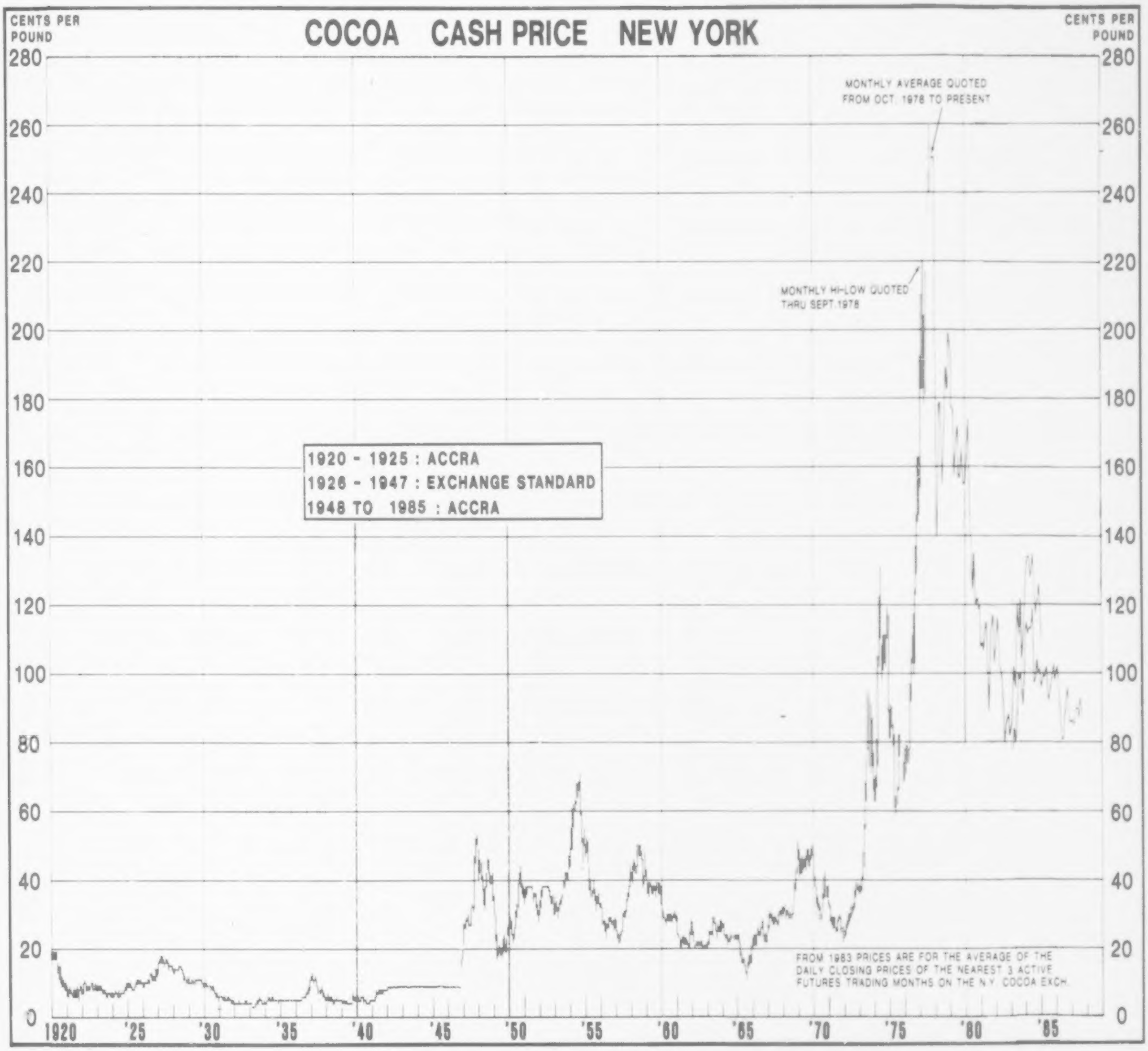
[1] Avg. of the daily closing price of the nearest 3 active futures trading month converted to ¢ per lb. [2] Prices prior to 1982 are for spot cocoa bean (ACCRA) in N.Y. *Source: Bureau of Labor Statistics* (0191-0221); *N.Y. Cocoa Exchange* T.105



COCOA CASH PRICE NEW YORK

Visible Stock of Cocoa in Philadelphia (Delaware River) Warehouses, at End of Month In Ths. of Bags

Year	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	38.1	15.5	15.4	45.7	189.7	227.4	246.6	255.8	307.5	271.9	234.6	231.3
1982	190.1	163.4	174.1	163.2	154.0	125.7	104.6	64.2	51.8	64.3	69.3	98.5
1983	123.6	192.4	281.5	356.5	344.7	338.9	297.7	258.5	204.5	119.8	69.2	43.0
1984	59.5	69.9	105.4	98.8	148.3	168.0	158.3	187.6	165.3	99.7	83.6	217.1
1985	221.3	282.0	333.6	420.9	416.4	389.1	315.9	323.9	320.7	316.3	289.1	280.6
1986	281.3	276.4	258.8	255.8	237.9	201.3	208.7	182.0	209.5	137.1	136.7	188.5
1987	209.8	210.8	228.9	224.1	243.6	276.2	291.4	259.7	236.6	177.9	189.6	206.3

Source: Coffee, Sugar & Cocoa Exchange, Inc. T 107

Visible Stock of Cocoa in New York Warehouses[1], at End of Month In Thousands of Bags

Year	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	37.5	14.9	29.3	66.5	120.3	93.1	75.8	115.3	84.6	62.1	55.5	66.2
1982	33.4	61.3	66.7	57.3	99.0	98.6	115.8	137.7	108.8	97.1	96.1	68.9
1983	64.7	80.1	80.0	88.9	136.4	184.8	178.7	173.5	138.6	109.5	103.0	93.9
1984	59.3	53.2	52.3	52.5	70.7	57.2	93.8	99.9	109.2	62.8	36.3	32.4
1985	34.7	22.0	13.2	36.4	167.8	170.9	161.3	155.7	164.6	150.6	131.8	107.1
1986	99.2	96.9	95.6	89.7	87.4	90.3	88.9	103.6	102.1	87.5	70.6	59.9
1987	51.9	43.5	40.0	39.4	55.2	46.1	58.7	43.5	49.4	44.8	107.7	149.1

[1] In licensed & unlicensed warehouses of storage companies licensed by the Coffee, Sugar & Cocoa Exch. *Source: Coffee, Sugar & Cocoa Exch., Inc.* T 106

U.S. Spot Cocoa Prices for Selected Origins of Cocoa Beans and Products (Dollars per metric ton)

Crop Year (Oct.–Sep.)	Cocoa Beans: Ivory Coast	Cocoa Beans: Brazil	Cocoa Beans: Dominican Republic	Cocoa Beans: Ecuador	Chocolate Liquor: Ecuador	Chocolate Liquor: Brazil	Cocoa Butter: African	Cocoa Butter: Other	Cocoa Cake 10–12% Fat
1982/83	2,031	1,999	1,815	1,886	2,310	2,440	4,294	4,191	872
1983/84	2,569	2,611	2,361	2,477	3,025	3,119	5,281	5,178	1,610
1984/85	2,433	2,407	2,197	2,239	2,784	2,919	5,331	5,276	951
1985/86	2,281	2,207	2,020	2,048	2,552	2,720	4,940	4,897	825
1986/87	2,155	2,087	1,942	1,975	2,554	2,634	4,643	4,608	965
July '87	2,288	2,236	2,039	2,094	2,727	2,816	4,917	4,881	1,068
Aug. '87	2,192	2,119	1,954	2,006	2,598	2,683	4,684	4,641	1,023
Sept. '87	2,154	2,080	1,930	1,991	2,579	2,636	4,577	4,542	1,027

Source: The Cocoa Merchants Association. All prices are nominal net ex dock or ex warehouse, U.S. Eastern seaboard North of Hatteras, for merchandise physically available in interstate commerce, in truckload quantities, regular commercial quality. *Foreign Agricultural Service, U.S.D.A.* T 99a

Month–End Open Interest of Cocoa Futures at New York In Contracts

Year	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	14,269	14,064	16,209	13,721	13,929	11,853	16,328	16,897	17,042	18,823	15,388	14,137
1982	14,554	14,421	15,129	14,036	15,563	14,083	15,954	14,678	16,439	18,615	17,600	19,988
1983	25,989	22,401	22,155	24,796	29,457	29,403	28,447	29,275	28,282	27,890	29,266	29,153
1984	29,712	26,116	26,511	22,277	26,795	23,817	23,691	23,397	22,106	22,505	21,253	20,936
1985	25,616	23,817	27,701	23,588	21,103	21,515	20,487	19,106	20,720	20,224	17,981	16,044
1986	19,259	19,521	21,341	19,654	24,246	23,100	26,017	25,781	25,636	25,189	22,577	26,109
1987	24,868	23,444	23,199	23,313	25,155	25,156	33,285	30,588	32,109	32,042	27,643	

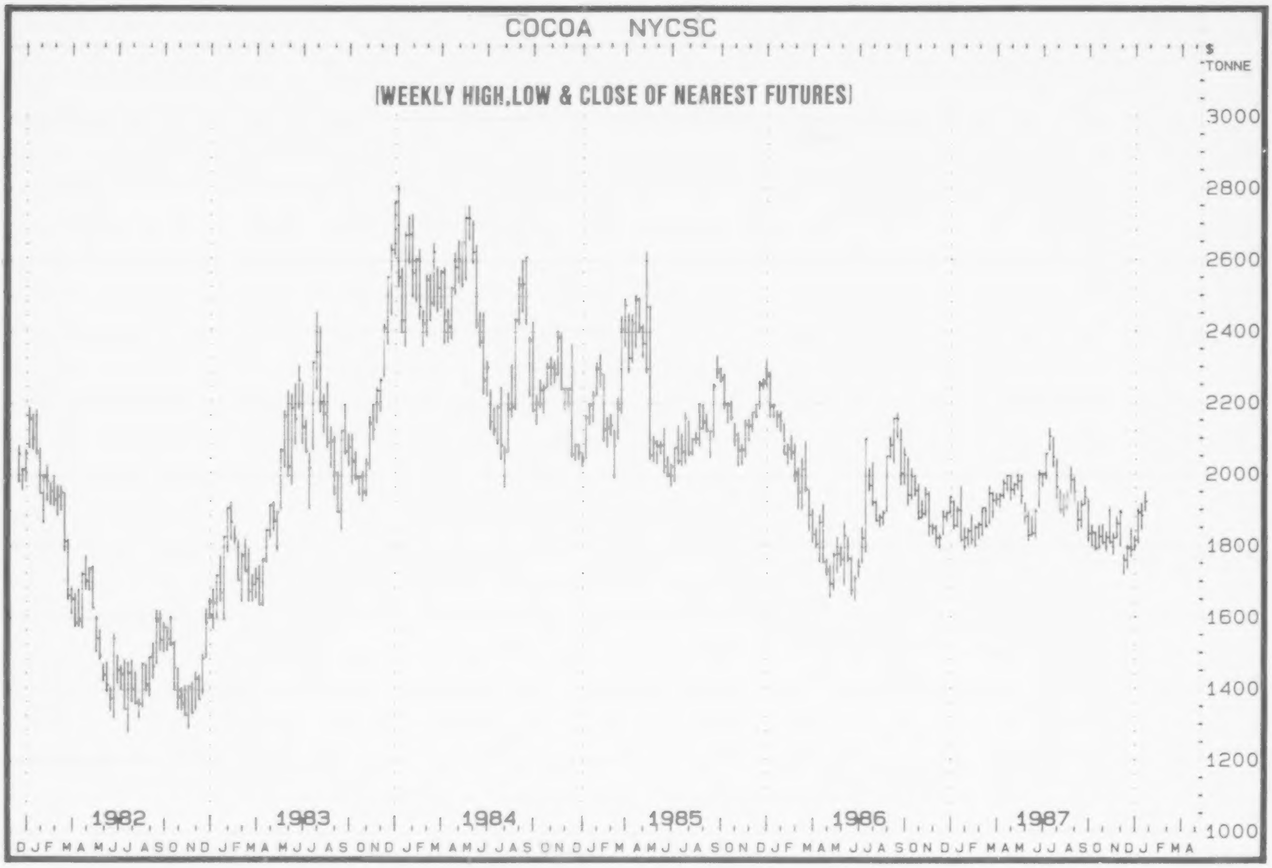
Source: Coffee, Sugar & Cocoa Exchange, Inc. T 103

Volume of Trading of Cocoa Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	32,916	43,352	37,056	52,875	32,691	54,479	55,525	53,557	43,764	63,751	53,674	39,011	562,651
1982	42,498	44,744	52,468	52,591	38,332	50,693	45,504	45,457	61,137	67,652	48,243	56,744	607,964
1983	88,429	96,636	82,115	91,851	83,275	135,536	102,212	112,031	103,023	70,032	97,781	98,619	1,162,540
1984	151,282	113,788	102,622	103,415	113,757	107,219	75,180	101,732	75,294	69,322	74,357	33,927	1,127,752
1985	86,748	83,988	94,863	72,564	64,716	62,989	74,583	57,842	52,912	58,358	53,056	37,954	800,573
1986	52,774	61,836	70,859	74,249	57,525	77,335	79,029	65,963	75,673	64,729	54,090	43,703	777,765
1987	67,268	61,641	73,341	67,954	68,521	93,849	111,728	66,990	71,591	70,164	81,605	60,813	895,465

Source: Coffee, Sugar & Cocoa Exchange, Inc. T 104

COCOA



High, Low & Closing Prices of March Cocoa Futures at New York In Dollars per Tonne

Year of Delivery	Year Prior to Delivery											Delivery Year			Life of Delivery Range
	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	
1983 High	2145	2105	1875	1835	1663	1640	1604	1696	1669	1495	1650	1840	1919	1816	2295
Low	2071	1840	1738	1657	1508	1485	1451	1534	1435	1383	1447	1565	1640	1688	1383
Close	2071	1854	1802	1660	1605	1518	1527	1604	1467	1465	1603	1826	1704	1691	—
1984 High	2015	1958	1990	2325	2390	2460	2440	2195	2124	2272	2759	2805	2626	2645	2805
Low	1785	1790	1780	1895	2070	2055	2080	1907	1953	1967	2175	2353	2355	2425	1653
Close	1838	1835	1990	2168	2224	2369	2113	2089	1989	2224	2755	2521	2462	2617	—
1985 High	2455	2510	2500	2560	2430	2234	2305	2350	2248	2291	2133	2309	2332	2210	2602
Low	2240	2350	2343	2401	2230	1998	1990	2150	2118	2056	2034	2018	2071	1985	1985
Close	2363	2489	2435	2401	2280	2000	2275	2199	2224	2117	2052	2271	2140	2139	—
1986 High	2135	2190	2170	2105	2048	2207	2295	2392	2365	2239	2305	2315	2140	2059	2392
Low	2000	1955	2025	1980	1967	1991	2125	2170	2173	2117	2180	2118	1975	1899	1899
Close	2028	2150	2027	2041	2013	2153	2262	2336	2191	2214	2298	2146	2000	2011	—
1987 High	2283	2200	2106	1960	2007	2098	2176	2248	2076	2003	1937	1965	1884	1915	2412
Low	2148	2015	1931	1884	1825	1895	1970	2011	1920	1876	1837	1787	1797	1827	1787
Close	2165	2039	1952	1906	1904	2034	2176	2034	1927	1886	1935	1820	1857	1906	—
1988 High	2030	2043	2115	2118	2055	2180	2031	1994	1895	1930	1908				
Low	1957	1980	2025	1971	1913	1986	1922	1825	1816	1794	1727				
Close	2000	2033	2066	1985	2034	2021	2005	1844	1850	1866	1814				

Source: Coffee, Sugar & Cocoa Exchange, Inc.

T.108

Coconut Oil and Copra

Copra, the dried meat of the coconut, is processed or crushed to produce coconut oil and copra meal. The USDA projected world production of copra in 1987/88 at 4.53 million tonnes, 2 percent less than a year earlier. Copra production has risen in recent years, with the dominant producers being the Philippines and Indonesia. Together they account for about two-thirds of world output. Weather developments in these countries are often a major determinant in price direction. The Philippine copra crop was sharply reduced in 1987/88, due to a drought in key areas. The country's copra production was placed at 1.9 million tonnes, down 17 percent. At the same time, the Indonesian crop was somewhat larger, which offset part, but not all, of the decline in the Philippine crop. Severe drought also reduced the Sri Lankan coconut crop.

World copra exports were projected by USDA to total 440,000 tonnes, down 2 percent from a year earlier. Philippine copra exports were expected to decline by 23 percent. While the Philippines is the largest exporter, others are Pacific islands, like New Guinea, Navru, and the Solomon Islands. Because of a lack of crushing facilities in smaller producing countries, copra is exported to countries such as West Gemany and Japan for processing. With reduced availabilities, the crush was expected to fall by 4 percent to 4.47 million tonnes. Ending stocks were forecast to be tight at only 8,000 tonnes, almost half the year-earlier level.

World production of coconut oil in 1987/88 was forecast at 2.77 million tonnes, 4 percent less than a year earlier. The Philippines and Indonesia are major producers of coconut oil. A sharp reduction in Philippine oil production to 1.1 million tonnes accounted for the decline in world output. Coconut oil exports were estimated to fall to 1.18 million tonnes, 11 percent less than the previous season. Philippine oil exports were estimated at 900,000 tonnes, down 18 percent.

World coconut oil consumption in 1987/88 was placed at 2.87 million tonnes, 3 percent less than last season. Coconut oil use has been stabilizing, while demand for competing oils like palm has increased. In large measure, this has been due to higher prices for coconut oil as supplies in 1987/88 have been lower. The primary users of coconut oil are the U.S., West Germany, India, Indonesia, and the Philippines. U.S. imports of coconut oil, which had been increasing, more recently began to decline. Most U.S. coconut oil use is for inedible purposes like soap. Much of the drop in coconut oil imports has been due to high prices of the oil, versus soyoil which is in large supply. World ending stocks of coconut oil were estimated at 280,000 tonnes, 20 percent less than a year ago and the lowest since 1984/85.

World production of copra meal in 1987/88 was expected to total 1.6 million tonnes, down 4 percent from a year earlier. Copra meal production in the Philippines in 1987/88 was estimated at 630,000 tonnes, off 21 percent from the previous year. World exports of meal were estimated at 990,000 tonnes, 7 percent less than in 1986/87. World consumption of copra meal in 1987/88 was placed at 1.67 million tonnes. The European Community is the major user of copra meal. Global ending stocks were placed by USDA at 60,000 tonnes.

World Copra Production by Principal Countries In Thousands of Metric Tons

Crop Year	Naupu	Fiji	India	Indonesia	Jamaica	Malaysia	Mexico	Mozambique	Papua-New Guinea	Philippines	Solomon Isl.	Sri Lanka	Tanzania	Thailand	Ivory Coast	New Hebrides	Vietnam	World Total
1979–0	46	25	329	1,158	29	210	120	68	145	1,960	32	93	29	50	21	34	39	4,553
1980–1	42	25	329	1,284	25	208	130	55	158	2,256	32	128	29	30	24	47	39	4,986
1981–2	42	25	335	1,205	28	206	100	50	132	2,077	33	174	29	35	26	44	40	4,790
1982–3	42	25	268	1,091	29	208	110	50	120	2,015	31	131	29	30	27	45	40	4,600
1983–4[1]	42	25	300	1,205	30	212	100	50	125	1,417	33	72	29	40	27	47	41	3,820
1984–5[2]	42		338	1,203		220	100	50	128	2,000	33	129				47		4,760
1985–6[2]										1,813								5,320
1986–7[2]										2,431								4,740
1987–8[2]										2,100								4,630

[1] Preliminary. [2] Forecast. *Source: Foreign Agricultural Service, U.S.D.A.* T 109

World Coconut Oil Exports by Principal Countries In Thousands of Metric Tons

Crop Year	Sri Lanka (Ceylon)	Singapore[2]	Indonesia	Malaysia[2]	Philippines Registered	Ivory Coast	Netherlands	Mozambique	EC-10	Fiji	Papua New Guinea	Total Oceania	World Total
1979–0	3	35	41	65	914	9	35	4	133	18	34	75	1,204
1980–1	21	63	4	64	1,047	13	41		67	15	29		1,338
1981–2	39	50	0	60	949	16	33		82	15	33		1,260
1982–3	38	30	8	69	1,020	16	35		65		22		1,320
1983–4[1]	40	24	20	65	586	20	20		52		22		910
1984–5[3]			3	66	949				63				1,180
1985–6[3]					1,240								1,620
1986–7[3]					1,100								1,320
1987–8[2]													1,180

[1] Preliminary. [2] Net exports. [3] Forecast. *Source: Foreign Agricultural Service, U.S.D.A.* T 110

COCONUT OIL AND COPRA

Supply & Distribution of Coconut Oil in the United States In Millions of Pounds

Year Begin Oct. 1	Copra U.S. $ Tonne Rotter-dam C.I.F.	Imports[2]	Stocks Oct. 1[3]	Total Supply	Exports & Shipments	Disappearance			Production of Coconut Oil (Refined)				
						Total Domestic	Edible Pdt's	Inedible Pdt's	Total	Jan.–March	April–June	July–Sept	Oct.–Dec.
1981–2	292	960	204	1,164	29	976	337.9	411.5	700.3	193.3	175.3	171.9	159.8
1982–3	303	882	160	1,042	21	876	340.0	493.9	665.7	162.1	162.4	168.7	172.5
1983–4	351	916	145	1,061	50	901	299.0		692.6	163.1	186.0	167.1	176.4
1984–5[1]	303	891	110	1,001	20	904	27.0	376.0	616.2	161.3	175.7	145.1	134.1
1985–6[1]	239	1,217	130	1,347	22	1,016	332.8		564.0	130.7	133.9	147.6	151.8
1986–7[1]	188	937	308	1,245	22	1,047	340		716.3	197.9	180.4	155.4	182.6
1987–8[1]	166	960	273	1,233	22	990				193.6	214.9	195.3	

[1] Preliminary. [2] Imports for consumption. [3] Includes G.S.A. stockpile & in U.S. bond. *Sources: Bureau of the Census; Agricultural Marketing Service* T 112

U.S. Consumption of Coconut Oil in End Products (Edible & Inedible Pdts.) In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	69.3	71.0	81.5	88.9	87.6	76.1	73.6	79.0	72.4	84.0	75.4	55.4	914.2
1979	72.7	66.3	83.3	69.1	69.9	62.0	50.4	58.5	58.0	54.4	55.3	48.5	748.5
1980	55.9	49.9	59.5	55.8	58.1	56.3	56.2	51.0	62.5	66.9	63.1	58.3	693.5
1981	67.6	65.0	71.1	68.2	64.0	70.4	58.0	70.4	66.7	73.2	59.8	52.2	786.6
1982	63.3	59.6	61.7	58.5	64.7	64.2	62.2	63.9	66.1	60.2	70.5	60.6	755.5
1983	62.0	64.8	61.1	64.8	80.2	74.9	70.5	61.2	64.3	68.4	66.2	61.0	799.4
1984	71.5	68.5	66.0	67.0	72.6	70.9	61.8	70.7	48.1	63.4	56.6	45.3	762.4
1985	53.4	57.1	46.1	52.5	51.7	52.8	53.2	57.2	61.2	53.0	57.7	50.0	645.9
1986[1]	67.7	43.8	44.7	52.5	45.7	50.0	49.5	67.2	52.8	78.7	65.4	52.2	670.2
1987[1]	63.7	59.3	76.2	74.1	72.8	81.4	73.8	79.1	83.8	89.6	71.1		

[1] Preliminary. *Source: Bureau of the Census* T 114

Stocks of Coconut Oil (Crude & Refined) in the United States[2] In Millions of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1979	154.6	211.3	216.0	89.1	47.5	156.4	119.5	132.2	138.7	167.1	235.0	218.8
1980	309.7	357.7	248.4	246.5	211.2	211.9	220.6	191.6	210.1	182.6	225.6	264.6
1981	300.1	309.2	359.6	322.5	309.5	289.5	285.1	265.8	260.3	227.7	170.0	168.7
1982	173.1	153.6	186.0	160.7	153.0	170.8	194.8	184.3	166.9	159.7	144.5	144.5
1983	127.2	143.8	144.7	144.0	162.9	168.9	123.6	127.7	131.8	145.3	162.5	175.6
1984	175.2	215.5	193.8	165.0	150.2	121.8	78.7	90.9	100.2	111.0	119.8	107.3
1985	121.4	128.0	91.9	81.3	75.9	86.0	116.0	121.7	140.5	130.0	177.4	162.8
1986[1]	206.5	259.0	262.1	285.1	247.4	289.3	275.0	273.4	273.8	308.0	295.4	320.5
1987[1]	323.3	323.6	360.4	318.0	336.1	271.2	203.6	243.8	240.8	270.2	288.5	327.3

[1] Preliminary. [2] Includes coconut oil held in U.S. customs bond. *Source: Bureau of Census* T 115

Average Price of Coconut Oil (Crude)[1] at New York[2] In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	46.3	47.2	47.0	49.9	53.2	57.3	57.3	53.7	44.8	42.5	42.4	40.2	48.5
1980	40.8	40.6	37.5	34.1	29.3	29.5	30.4	29.9	29.1	27.9	29.4	27.8	32.1
1981	26.3	25.0	23.9	24.3	26.0	27.4	28.1	26.4	24.3	26.6	26.6	25.4	25.9
1982	24.8	24.8	22.9	23.0	23.3	23.1	21.1	19.3	19.8	20.0	N.A.	N.A.	22.2
1983	N.A.	20.3	21.0	25.6	28.4	35.8	33.7	N.A.	N.A.	N.A.	N.A.	44.9	27.5
1984[2]	49.2	54.3	53.0	50.8	63.0	69.9	73.3	70.0	64.6	65.6	56.2	52.6	60.2
1985	42.2	40.2	41.0	41.0	N.A.	N.A.	31.7	27.5	25.0	24.9	22.8	17.4	31.3
1986	20.6	18.0	15.6	15.5	13.8	13.9	13.8	13.0	13.3	16.8	19.8	20.7	16.2
1987	32.8	32.3	34.3	36.0	36.0	24.3	25.8	25.1	25.5				

[1] Tank cars, f.o.b. mill. Includes 1¢ import duty. [2] Prior to 1984, prices are at the U.S. Pacific Coast. *Source: Bureau of Labor Statistics* T 116

Coffee

The world coffee market, recently cited as the second largest cash commodity in the world after oil by *The Economist* magazine, is having to learn how to live with quotas again, after two years of non-quota trading. International Coffee Organization (ICO) quotas were suspended in February 1986, as prices soared on the back of a severe drought in Brazil, reaching a level where all economic provisions of the International Coffee Agreement were suspended.

On October 6, 1987, after many weeks of hard bargaining in which political considerations were held paramount to economic factors, a global quota of 58 million 60-kilo bags took effect. On October 8, it was officially confirmed by the ICO that another 1.5 million bags were cut under transitional trigger price arrangements in the new treaty. While the outcome of the meetings was practically a foregone conclusion, events within the meetings caused a very bumpy ride for the bulls in the days leading up to the talks' successful conclusion.

The producers, lead by Brazil and Colombia, and with the exception of Indonesia, were unanimous in holding to a quota proposal built on recognition of past political factors. Since world coffee prices had declined by more than 50 percent over the previous year, with losses of about $7 billion, there was understandable interest among lending nations to listen to the producers' ideas of how to raise prices. In the long run, the consumers' ideas of "objective criteria," in which quota allocations would be based on purely economic considerations, were abandoned to the bigger economic reality of international debt service.

World coffee production for 1987/88 was forecast at 97.8 million bags, or 27 percent more than 1986/87's 77.1-million-bag output. Exportable production (total harvested production less domestic consumption in producing countries) was estimated at 73.2 million bags.

Source countries shipped large quantities in 1987, as they prepared for a quota market. Colombia, for example, shipped 1.6 million bags of coffee in September 1987, a 12 month-high, and Brazil was also an active shipper during the period. As a result, while stocks in producing countries were low, stocks in consuming countries, notably the U.S., the location of the arabica terminal market, were high.

Futures prices, basis the nearest New York contract, broke below $1.00 a pound during the summer of 1987, as chances of a Brazilian frost diminished. However, prices began working higher as the ICO meeting approached, topping the ICO floor of $1.20 a pound just before the agreement was announced. Then, because the agreement restricts supplies of arabicas relative to robustas that are not deliverable against the New York contract, New York futures trended higher during early 1988, reaching the ICO ceiling of $1.40.

World coffee consumption, measured in terms of disappearance (net imports less changes in stock levels), in ICO member importing countries was estimated at 57.2 million bags in coffee year 1985/86, the last year for which full figures were available. This compared to 55.9 million bags in 1984/85. Imports by these countries normally account for 80 percent or 90 percent of world trade. Consumption in exporting countries is estimated to have increased by 5 percent in 1986/87, and U.S. consumption is believed to have increased by 2 percent, mainly as a result of lower retail prices. Global demand was projected to gain by about 1 percent a year.

The member/non-member category complicates the consumption analysis because of the way coffee moves across borders; but 1986/87 non-member consumption was projected to be higher due to low coffee prices. In 1985/86, exports by members to non-members totaled 6.9 million bags, reflecting a drop of approximately 30 percent from 1984/85's 11.4 million bags.

Futures Markets

Washed arabica coffee futures are traded on the Coffee, Sugar, and Cocoa Exchange (CSCE) in New York. Robusta coffee futures are traded in London and Paris.

World Coffee Supply and Distribution In Thousands of 60 Kilo Bags

Country by Time Period	Beginning Stocks	Production	Imports	Total Supply Distribution	Domestic Use	Exports				Ending Stocks
						Beans	RSTD GRND	Soluble	Total	
1977/78	25,612	70,696	613	96,921	18,764	47,704	183	897	48,784	29,373
1978/79	29,373	78,978	729	109,080	19,466	61,906	222	2,433	64,561	25,059
1979/80	25,053	81,789	690	107,532	19,973	59,244	217	2,573	62,034	25,525
1980/81	25,525	86,261	653	112,439	20,595	56,835	166	2,821	59,822	32,022
1981/82	32,022	98,189	769	130,980	21,232	60,584	223	4,059	64,866	44,882
1982/83	44,597	82,170	773	127,540	20,806	62,539	202	2,490	65,231	41,503
1983/84	41,503	88,595	679	130,777	21,222	64,927	340	2,774	68,041	41,514
1984/85	41,514	90,504	492	132,510	23,299	68,264	315	3,342	71,921	37,290
1985/86	37,290	95,385	526	133,201	21,624	66,768	396	2,614	69,778	41,799
1986–87[1]	41,799	77,086	346	119,231	22,221	64,443	365	2,792	67,600	29,410
1987–88[2]	29,410	97,820	350	127,580	23,359	65,865	367	2,820	69,052	35,169

Note: Total may not add because of rounding. [1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.117a

COFFEE

World Green Coffee (Total) Production In Thousands of 60 Kilo Bags (132.276 Lbs. Per Bag)

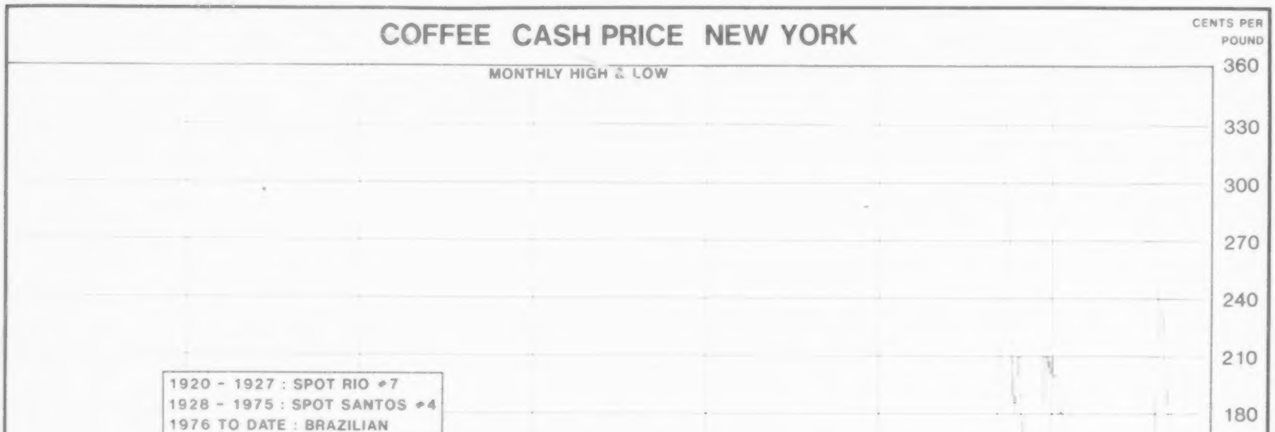
Crop Year	Angola	Brazil	Cameroon	Colombia	Costa Rica	Ethiopia	Guatemala	India	Indonesia	Ivory Coast	Mexico	Salvador	Uganda	Zaire (Congo, K)	World Total
1980–1	586	21,500	1,959	13,500	2,140	3,264	2,702	1,977	5,365	6,090	3,862	2,940	2,133	1,526	86,344
1981–2	392	33,000	1,850	14,342	1,782	3,212	2,653	2,540	5,785	4,160	3,900	2,886	2,885	1,425	98,189
1982–3	330	17,750	1,830	13,300	2,300	3,670	2,530	2,170	4,750	4,510	4,530	3,100	3,000	1,354	82,778
1983–4	260	30,000	1,000	13,000	2,070	3,300	2,340	1,667	5,515	1,420	4,530	2,400	2,700	1,350	88,595
1984–5	260	27,000	2,316	11,000	2,516	2,587	2,703	3,250	5,600	4,609	4,250	2,680	2,800	1,540	90,504
1985–6	250	33,000	1,883	12,000	1,514	2,833	2,590	2,033	5,800	4,420	4,750	2,089	2,700	1,610	95,385
1986–7[1]	250	13,900	1,925	11,000	2,310	3,100	2,530	2,833	5,800	4,000	4,640	1,920	2,700	1,720	77,086
1987–8[2]	250	35,000	1,960	10,700	2,300	2,900	2,650	2,250	5,700	4,500	4,850	1,765	2,800	1,830	97,820

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.117

World Green Coffee (Exportable)[3] Production In Thousands of 60 Kilo Bags

Crop[2] Year	Angola	Brazil	Cameroon	Colombia	Costa Rica	Ethiopia	Guatemala	Indonesia	Ivory Coast	Kenya	Mexico	Salvador	Uganda	Zaire (Congo, K)	World Total
1980–1	545	13,500	1,926	11,675	1,932	1,664	2,381	4,137	6,026	1,648	2,362	2,740	2,090	1,346	66,064
1981–2	350	24,500	1,815	12,492	1,539	1,596	2,328	4,630	4,095	1,434	2,450	2,686	2,840	1,240	77,311
1982–3	287	9,750	1,785	11,445	2,077	2,108	2,195	3,636	4,445	1,501	2,830	2,900	2,954	1,159	62,366
1983–4	216	21,500	945	11,140	1,837	1,728	2,000	4,375	1,395	1,938	3,030	2,200	2,653	1,150	67,676
1984–5	215	16,500	2,261	9,135	2,281	1,087	2,373	4,590	4,582	1,488	2,520	2,480	2,752	1,340	67,463
1985–6	204	24,000	1,845	10,130	1,276	1,293	2,250	4,800	4,391	1,951	3,200	1,889	2,650	1,410	74,653
1986–7[1]	207	4,900	1,887	9,000	2,070	1,400	2,180	4,850	3,810	1,755	3,080	1,720	2,649	1,520	55,118
1987–8[4]	205	25,000	1,920	8,680	2,058	1,100	2,300	4,650	4,470	1,800	3,270	1,565	2,747	1,630	74,653

[1] Preliminary. [2] Coffee marketing year begins in July in some countries & in others about Oct. [3] Exportable production represents total harvested production minus estimated domestic consumption. [4] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.118


COFFEE CASH PRICE NEW YORK

MONTHLY HIGH & LOW

1920 - 1927 : SPOT RIO #7
1928 - 1975 : SPOT SANTOS #4
1976 TO DATE : BRAZILIAN

Note: Exchange was closed from Sept. 1941 to Sept. 1946.

Origin of Coffee Imports (for Consumption) into the U.S. In Thousands of 60 Kilo Bags

Year	Angola	Brazil	Colombia	Costa-Rica	Domin. Repub.	Ecuador	Ethi-opia	Guate-mata	Indon-esia	Ivory Coast	Mexico	Peru	Phil-ippines	Salva-dor	Vene-zuela	Grand Total
1980	120	3,505	3,404	298	343	539	406	1,374	1,315	438	1,337	573	179	1,374	35	18,153
1981	21	3,243	1,727	226	359	701	547	645	1,516	602	1,393	439	270	779	27	16,555
1982	63	3,372	1,710	248	500	773	578	844	1,118	998	1,377	513	308	919	16	17,416
1983	27	3,417	1,755	226	430	857	519	887	1,079	674	1,495	439	276	1,214	26	16,449
1984	5	3,866	2,170	258	447	961	423	1,118	1,030	1,144	1,553	557	296	1,052	88	17,734
1985	27	4,148	2,554	360	439	974	195	1,054	1,041	951	1,812	543	407	1,366	107	18,698
1986[1]	6	2,200	2,629	413	488	1,371	243	1,658	1,346	694	2,125	575	440	1,108	224	19,483

[1] Preliminary. *Source: U.S. Department of Commerce*

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Total Coffee Imports (for Consumption) into the U.S. In Thousands of 60 Kilo Bags

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	2,020	1,366	1,421	1,642	1,566	1,663	1,533	1,386	1,062	1,292	1,386	1,715	18,153
1981	1,858	1,738	1,395	1,299	1,356	1,026	922	1,213	1,150	1,487	1,565	1,547	16,555
1982	1,287	1,195	1,490	1,147	1,476	1,335	1,282	1,602	1,640	2,005	1,356	1,602	17,416
1983	1,556	1,332	1,373	1,253	1,502	1,034	1,319	1,230	1,532	1,685	1,380	1,253	16,449
1984	1,598	1,299	1,440	1,905	1,615	1,059	1,722	1,735	1,432	1,614	1,127	1,187	17,734
1985	1,622	1,681	1,702	1,430	1,324	1,751	1,217	1,757	1,773	1,385	1,272	1,785	18,698
1986	2,360	1,836	1,645	1,667	1,810	1,286	1,549	1,513	1,641	1,535	1,449	1,192	19,483
1987	1,092	1,218	1,841	1,789	1,883	2,181	1,717	1,481					

Source: U.S. Dept. of Commerce

T 121

Average Spot Price of Coffee (Brazilian[1]) at N.Y. In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	189.0	213.0	205.0	208.0	218.0	211.0	195.0	206.0	206.0	210.0	210.0	208.0	206.6
1981	218.0	218.0	218.0	218.0	129.0	115.5	115.5	127.0	127.0	129.5	147.0	150.0	159.4
1982	151.0	136.0	136.0	145.0	145.0	145.0	145.0	145.0	145.0	145.0	133.0	133.0	142.0
1983	133.0	133.0	133.0	141.5	141.5	141.5	141.5	143.0	143.0	143.0	143.0	143.0	140.0
1984[1]	150.0	151.0	151.0	148.0	148.0	147.0	145.0	145.0	146.0	140.0	138.0	138.0	145.6
1985	140.0	145.0	141.0	138.0	138.0	140.0	134.0	133.0	133.0	137.0	155.0	175.0	142.4
1986	241.0	226.0	235.0	228.0	218.0	193.0	188.0	185.0	193.0	187.0	167.0	146.0	200.6
1987	126.5	119.8	103.4	102.1	109.2	108.0	99.8	95.9	96.6	105.4	118.6	119.4	108.7

[1] Prices prior to 1984 are for Santos No. 4 at N.Y. *Sources: Bureau of Labor Statistics* (0191-0101.01); *Wall St. Journal*

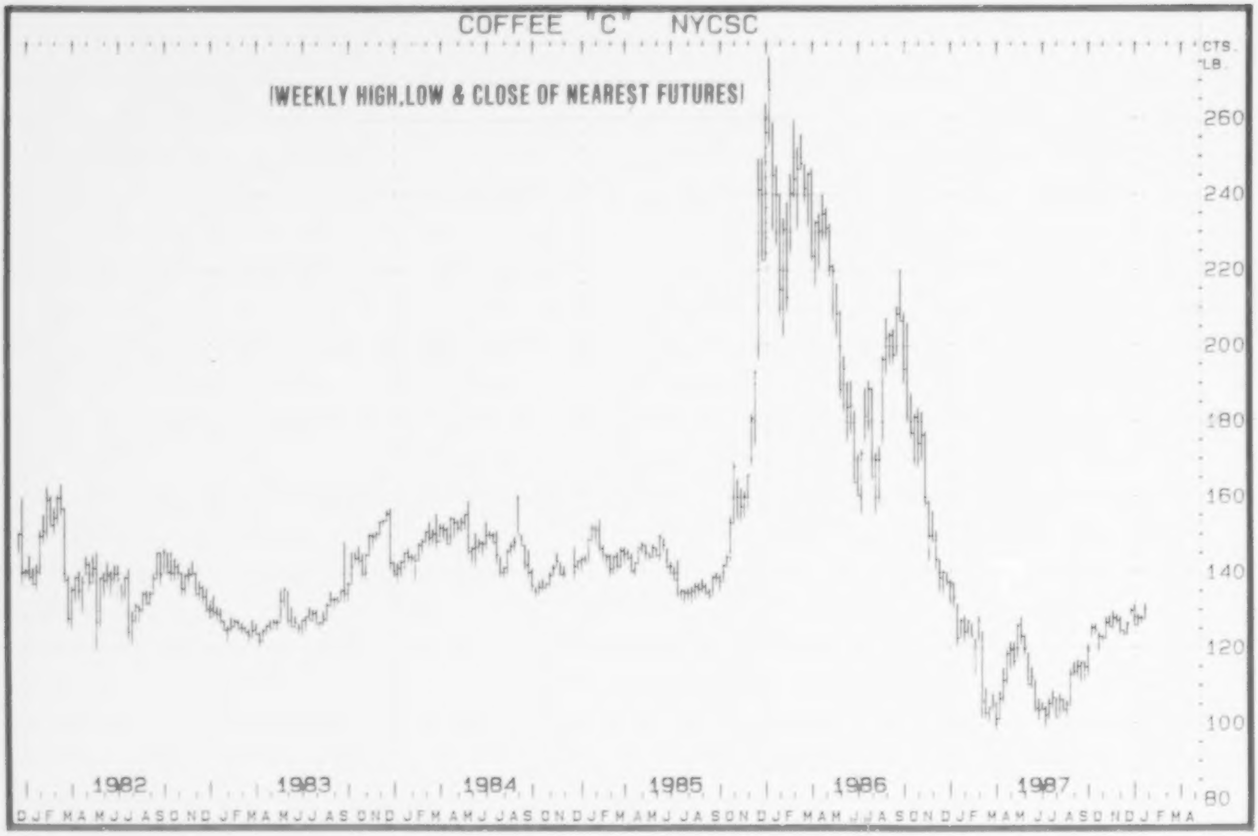
T 120

U.S. Average Monthly Wholesale Prices of Coffee In Cents per Pound

Year	Jan.	Feb.	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Average
Ground Roast—All Packs													
1985	276.7	277.3	277.8	277.7	279.0	273.0	273.5	273.6	273.9	273.7	275.0	284.0	276.3
1986	334.5	357.5	361.7	367.6	368.9	373.9	366.5	358.0	352.6	350.9	347.7	347.6	357.3
1987	329.6	329.4	319.4	310.1									
Ground Roast in One Lb Cans													
1985	259.7	259.9	261.3	260.8	267.3	258.3	254.6	254.9	254.6	254.6	256.6	268.6	259.3
1986	334.2	345.4	346.7	345.7	350.7	349.4	348.4	350.3	341.7	343.8	334.5	334.5	343.8
1987	311.4	314.3	298.1	296.6									
Soluble Per 16 Ounces													
1985	795.1	789.5	791.5	793.3	790.1	791.1	799.2	801.8	804.1	804.8	817.8	837.8	801.3
1986	932.4	995.4	1012.8	1020.3	1016.1	1014.0	1003.4	956.4	970.8	952.2	977.7	977.7	985.8
1987	943.2	885.2	861.9	861.9									

Source: Bureau of Labor Statistics; Foreign Agricultural Service, U.S.D.A.

COFFEE



High, Low & Closing Prices of May Coffee Futures in New York In Cents per Pound

Year of Delivery		Year Prior to Delivery										Delivery Year					Life of Delivery Range
		Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
1981	High	190.75	187.50	198.00	198.60	181.40	162.00	157.00	138.00	128.50	130.40	137.00	127.00	131.40	129.25	127.90	198.60
	Low	176.25	176.10	177.40	169.00	138.47	135.25	129.75	128.25	114.75	116.00	123.30	115.55	117.65	121.50	113.00	113.00
	Close	179.69	178.54	190.60	179.75	146.59	143.78	134.65	128.55	123.25	127.81	127.25	121.00	128.66	126.48	113.00	—
1982	High	126.25	124.00	123.87	111.00	126.75	120.25	123.50	130.25	138.00	133.80	137.88	147.30	149.00	143.75	144.95	149.00
	Low	120.10	117.50	111.50	80.50	81.25	98.28	96.10	123.00	124.25	122.23	128.75	137.25	124.50	129.20	135.10	80.50
	Close	122.60	122.25	112.50	87.50	121.45	98.28	123.00	129.00	126.23	133.63	137.88	141.26	128.56	141.72	138.25	—
1983	High	116.50	118.50	117.50	121.25	117.50	114.00	131.00	131.15	135.40	132.30	127.90	123.95	126.90	126.85	135.17	135.40
	Low	114.00	107.50	109.25	113.50	103.51	107.50	111.00	124.00	126.25	121.60	120.25	118.90	120.35	120.10	124.55	103.51
	Close	114.76	113.00	118.51	118.28	108.25	113.10	129.45	130.49	131.78	125.00	120.60	120.12	123.23	124.80	134.17	—
1984	High	117.00	117.75	126.00	124.50	124.00	127.25	130.05	137.30	139.90	144.10	139.65	145.00	152.30	154.23	158.50	158.50
	Low	109.50	113.00	116.00	121.50	121.60	122.25	125.25	129.30	134.50	134.30	134.25	132.75	141.90	147.00	147.80	108.50
	Close	115.13	116.75	123.38	122.51	122.26	125.80	129.25	135.50	138.78	135.94	137.05	144.84	151.37	152.20	154.00	—
1985	High	131.50	138.50	152.00	146.28	140.15	146.00	143.15	135.35	139.15	140.25	147.90	150.70	146.20	147.30	147.50	152.00
	Low	125.28	130.00	137.50	137.75	132.90	133.25	132.75	131.31	134.50	135.60	138.65	139.85	139.25	138.85	143.00	122.01
	Close	131.38	138.50	142.25	137.76	133.48	144.15	133.80	135.05	135.72	140.25	147.24	139.96	144.43	145.80	143.50	—
1986	High	142.50	145.00	144.50	148.75	143.50	142.13	144.45	161.18	171.45	214.09	272.62	261.00	257.00	243.70	234.25	272.62
	Low	136.59	137.00	141.55	142.28	136.20	137.75	137.15	136.20	155.25	174.90	217.80	207.78	231.15	215.25	202.00	130.25
	Close	141.75	143.00	144.00	144.88	138.65	140.75	140.60	161.18	171.45	241.09	218.51	246.96	246.44	229.07	204.05	—
1987	High	265.00	261.00	250.00	210.50	198.50	205.00	219.50	189.00	173.00	150.50	137.50	130.50	126.80	121.30	128.00	291.83
	Low	247.00	239.10	210.25	177.00	169.95	165.50	173.00	165.38	149.26	132.50	122.20	115.50	99.90	98.10	114.50	98.10
	Close	265.00	247.38	210.25	180.25	184.50	199.50	192.78	169.38	151.25	138.00	126.99	129.31	100.04	119.30	122.08	—
1988	High	131.00	128.00	129.75	124.00	114.90	123.90	123.75	131.00	134.85	133.25						
	Low	111.75	110.50	119.20	110.00	107.00	109.50	116.50	118.55	128.75	128.15						
	Close	111.75	123.01	124.00	111.31	109.45	122.90	118.88	129.06	131.58	128.38						

Source: N.Y. Coffee, Sugar & Cocoa Exchange, Inc. T.125

Month-End Open Interest of Coffee Futures at New York   In Contracts

Year	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	10,752	10,336	11,739	11,752	11,317	7,885	8,042	9,351	9,439	9,420	8,600	7,706
1984	8,086	10,963	13,012	11,649	9,841	9,437	10,303	10,405	10,300	10,400	10,143	12,431
1985	14,435	12,454	12,973	13,230	12,606	10,561	11,783	10,148	10,066	11,873	11,776	13,167
1986	13,062	15,758	15,611	16,285	16,765	15,492	17,011	15,908	19,171	18,769	15,081	14,928
1987	15,679	16,881	18,811	21,389	22,110	21,326	22,936	25,480	25,910	24,179	21,491	21,921

Source: N.Y. Coffee, Sugar & Cocoa Exchange, Inc.   T.124

Volume of Trading of Coffee "C" Futures at New York   In Contracts

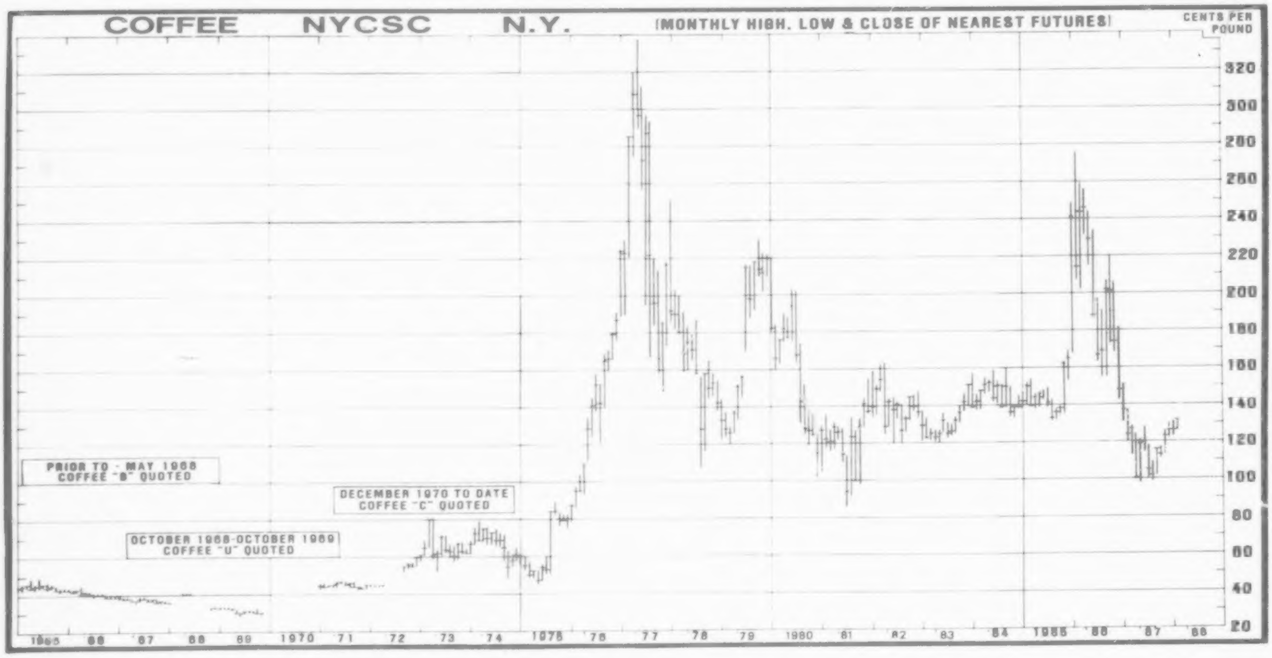
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	30,567	32,884	44,211	37,399	44,917	45,575	26,065	32,818	22,579	38,999	34,428	36,999	427,441
1984	33,327	44,890	46,793	46,833	51,174	42,891	34,956	48,979	43,159	29,703	37,457	36,094	499,133
1985	48,733	54,809	52,365	58,531	38,755	54,725	42,222	39,425	23,615	58,870	83,845	94,671	650,768
1986	113,305	95,509	76,787	82,308	75,176	87,323	78,670	106,366	93,465	112,685	89,713	61,835	1,073,142
1987	69,564	81,427	78,671	104,350	71,189	86,564	77,621	106,182	77,207	85,315	72,846	53,650	964,586

Source: N.Y. Coffee, Sugar & Cocoa Exchange, Inc.   T.123

Coffee United States Trade—Quantity and Value

		Imports				Exports				Reexports			
		Green	Roasted[2]	Soluble[2]	Total	Green	Roasted[2]	Soluble[2]	Total	Green	Roasted[2]	Soluble[2]	Total
1983	Ths. Bags[1]	16,449	197	1,019	17,665	14	147	199	360	599	30	22	651
	Mil. $	2,592	32	141	2,765	3	44	51	98	104	10	3	117
1984	Ths. Bags[1]	17,734	284	1,075	19,093	29	141	188	358	888	7	5	900
	Mil. $	3,061	50	153	3,264	5	44	46	95	163	2	1	167
1985	Ths. Bags[1]	18,698	258	994	19,950	22	167	140	328	695	7	12	714
	Mil. $	3,128	49	139	3,315	4	52	35	90	122	2	3	127
1986	Ths. Bags[1]	19,843	274	933	21,052	45	169	122	336	1,085	17	5	1,107
	Mil. $	4,359	65	183	4,607	11	50	33	94	255	5	1	261

[1] 60 kilogram bags of 132.276 pounds each. [2] Converted to bags of green bean equivalent (GBE) at 1.19 pounds green to 1 pound roasted and 2.6 pounds green to 1 pound soluble. *Source: Compiled from U.S. Department of Commerce, Bureau of Census data.*



Coke

U.S. Salient Statistics of Coke In Thousands of Short Tons

			Producers' Stocks—Jan. 1						Exports to							
				Oven Coke at Plants												
Year	Production[2]	Domestic Consumption	Total	Merchant	Furnace	Petroleum Coke	Exports	Imports	Canada	Mexico	Bel. Lux.	Netherlands	Korea Rep	Turkey	Venezuela	Avg Price of Coke Exports $ SH. Ton
1977	53,509	54,144	6,487	314	6,173	2,127	1,241	1,829	634.9	49.4						
1978	49,009	56,948	6,444	136	6,308	2,050	693	5,722	299	37.4						
1979	52,943	53,826	3,534	184	3,350	2,214	1,440	3,974	598	61.0						
1980	46,132	41,278	5,185	595	4,590	1,042	2,071	659	812	75.0						
1981	42,786	44,046	8,627	1,106	7,521	846	1,170	527								
1982	28,115	25,776	6,724	403	6,324	900	993	120	449.7	72.0	99.3	132.7	4.5	—	40.1	61.81
1983	25,808	29,850	5,781	331	7,858	1,344	665	35	471.2	55.8	24.7	24.0	—	—	7.0	68.53
1984	30,561	29,899	3,153	286	3,233	1,096	1,045	582	477.0	72.8	106.4	150.2	64.8	80.1	65.8	66.48
1985	28,651	29,270	3,471	353	3,363	968	1,122	578	407.3	97.3	108.8	68.0	.1	57.6	42.6	68.40
1986[1]	25,540	25,351	2,319	404	2,148	1,232	1,004	329	476.9	78.3	59.0	60.7		17.4	20.4	65.23
1987[3]	26,000	27,000	1,853	288	1,778	1,206	520	578								70.00

[1] Preliminary [2] Beehive and oven, coke & breeze. [3] Estimate *Source: Bureau of Mines* T.127

Petroleum Coke Production in the United States In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1986[1]	3,097	2,705	3,006	2,828	3,166	3,158	3,030	3,230	3,171	3,066	2,925	3,206	36,903
1987[1]	3,208	2,919	3,044	2,991	3,078	3,107	3,175	3,133					

[1] Preliminary. *Source: Bureau of Mines* T.128

United States Coke Production & Stock In Thousands of Short Tons

	Production					Stocks							
	Beehive & Oven (Byproduct)					Oven-coke Plants				Petroleum Coke			
Year	Jan.–Mar.	Apr.–June	July–Sept.	Oct.–Dec.	Total	Jan. 1	Apr. 1	July 1	Oct. 1	Jan. 1	Apr. 1	July 1	Oct. 1
1980	13,042	12,320	10,052	10,718	46,132	5,185	5,832	7,426	9,018				
1981	11,178	9,853	11,175	10,580	42,786	8,627	7,586	4,990	5,198		948	758	765
1982	8,828	7,507	6,270	5,509	28,115	6,724	7,455	7,871	7,969	900	939	1,091	1,244
1983	5,579	6,451	6,753	7,025	25,808	8,190	5,781	4,569	3,875	1,344	1,317	1,231	964
1984	7,696	8,227	7,522	7,115	30,561	3,518	3,153	2,966	3,444	1,096	1,116	912	991
1985	7,211	7,601	7,150	6,689	28,651	3,716	3,471	3,279	3,217	968			
1986[1]	7,252	7,156	5,513	5,618	25,540	2,553	2,319	2,174	2,141	1,232	1,456	1,366	1,296
1987[1]	5,937	7,073				2,066	1,853	1,546		1,206	1,437	1,309	

[1] Preliminary. *Source: Energy Information Administration* T.131

Index of Wholesale Price of Oven Foundry Coke F.O.B. at Birmingham, Ala. Base Per Ton 1967 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	439.6	439.6	439.6	439.6	439.6	439.6	439.6	439.6	439.6	439.6	439.6	434.0	439.1
1981	434.0	434.0	434.0	434.0	478.9	478.9	478.9	478.9	478.9	478.9	478.9	478.9	463.9
1982	478.9	485.2	485.2	N.A.	485.2	454.8	467.4	465.9	465.7	463.4	463.4	463.4	470.8
1983	460.5	460.5	452.7	452.7	433.6	433.6	426.8	448.9	448.9	448.1	448.8	410.7	443.8
1984	413.6	433.0	434.1	437.8	436.6	437.2	437.0	432.4	430.8	427.6	427.9	430.2	431.5
1985	434.8	434.5	428.2	425.3	424.8	424.3	423.8	423.7	423.7	422.4	422.1	419.2	425.6
1986	411.6	412.6	412.3	407.0	406.5	402.3	401.6	401.4	401.6	399.2	383.5	383.4	401.9
1987[1]	367.2	361.1	366.3	366.1	366.3	360.9	360.7	361.5	361.5	368.4			

[1] Preliminary. *Source: Bureau of Labor Statistics (0522-0101)* T.130

Copper

U.S. mine production of copper was forecast at 1.27 million tonnes in 1987, compared with 1.15 million in 1986, according to the Bureau of Mines (BOM). The additional output found a ready market, as the red metal shook off five years of lethargy to challenge all-time high prices.

U.S. apparent copper consumption was estimated at 2.19 million tonnes in 1987, near 2.14 million in 1986. And world consumption was close to the previous year. But prices soared, as global stocks built in the early 1980s were drawn down. At the end of 1986, industry stocks of refined copper were at the lowest level since 1973, and constituted five weeks of consumption. The 1982 year-end inventory was a 20-week supply. By early fall, inventories had dwindled to about a two-week supply.

Consumers had allowed inventories to drop, since the metal was believed to be readily available, prices had been stable at low levels, and with pressures to cut costs and adopt just-in-time inventory management. Meanwhile, U.S. producers had closed unprofitable mines and cut costs at remaining facilities. By 1986, the average U.S. cost of production (including by-product credits and taxes) was down to 56 cents/lb. of refined copper. Including cost of capital, the break-even price averaged 67 cents, in line with the average international cost of 65 cents for 117 mines, according to the BOM. Some savings came from developments in electrowinning and other chemical-based copper recovery systems. U.S. producers weren't able to increase output much in 1987 to take advantage of soaring prices, because of the lead time needed to bring new production on line.

Shipment problems in African countries (including shortages of railcars and engines in Zambia), delays in some U.S. and Canadian modernization programs, labor problems in Peru, and a shift to mining of somewhat lower-grade ore at Chile's largest mine all helped tighten supplies. By May, spot copper was becoming unavailable, with some producers reporting that they had sold out their entire 1987 output. When a modernized Utah mine reopened in late summer, its production was soon sold out into early 1988. Meanwhile, rising premiums for spot copper on the LME attracted supplies, and U.S. imports virtually dried up during late 1987.

On December 29, LME warehouses held only 39,175 tonnes of Grade A copper. COMEX stocks ended 1987 at 18,635 short tons. On December 22, the LME set all-time high prices for its contracts. Cash copper was £1,690/tonne, and three-month copper closed at £1,433, eclipsing the previous high of £1,400 set in 1980. In the U.S., cash copper prices challenged their all-time highs as well. Number 2 copper scrap closed the year at $1.07/lb., breaking its record of $1.045 set in 1980, and spot cathodes were quoted at $1.40/lb. and higher.

In spite of the stock market crash and fears the economy would slow, the outlook for copper prices was sanguine as 1988 began. While few expected all-time highs to be sustained, normal inventory replenishment and some economic growth in 1988 were expected to contribute to steady demand.

Futures Markets

Copper futures are traded on the COMEX in New York and on the MidAmerica in Chicago. Cash and futures are traded on the London Metal Exchange. Options are traded in both New York and London.

World Mine Production of Copper (Content of Ore) In Thousands of Metric Tons

Year	Australia	Canada³	Chile	China	Finland	Japan	Mexico	Peru	Zambia	Poland	Zaire	South Africa	Philippines	United States³	USSR³	World Total¹
1981	231.3	691.3	1,081	170.0	38.5	51.5	232.9	342.2	588.0	294.6	555.1	199.4	302.3	1,538	570.0	7,777
1982	245.3	612.4	1,242	175.0	37.8	50.7	229.2	353.8	574.5	376.0	519.0	188.7	292.1	1,147	560.0	7,622
1983	261.5	653.0	1,258	175.0	39.3	46.0	196.0	318.8	541.0	402.3	536.5	205.0	271.4	1,038	570.0	7,662
1984	236.0	712.8	1,291	180.0	31.3	43.3	303.5	353.9	532.7	431.0	562.0	198.2	233.4	1,103	590.0	7,974
1985²	260.0	738.6	1,356	185.0	30.0	43.2	276.1	391.3	458.6	431.3	562.7	195.4	222.2	1,106	600.6	8,088
1986¹	239.0	768.2	1,386	185.0	30.0	35.0	285.0	397.4	450.0	431.0	563.0	184.2	222.6	1,147	620.0	8,156

¹ Estimate ² Preliminary ³ Recoverable *Source: Bureau of Mines* T 132

Commodity Exchange Inc. (COMEX) Warehouse Stocks of Copper In Thousands of Short Tons

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1981	179.6	179.3	179.8	173.3	182.4	175.5	170.6	168.8	167.5	171.6	173.1	171.4
1982	187.6	189.3	193.6	195.7	198.5	201.5	202.2	207.4	211.8	207.1	210.3	246.3
1983	274.4	278.5	293.6	306.1	325.9	336.5	347.4	360.1	374.5	389.3	396.1	404.2
1984	409.2	417.7	409.9	403.2	392.3	372.5	361.6	335.6	320.6	310.8	300.7	288.1
1985	276.3	258.2	238.8	224.8	214.3	201.0	186.4	167.7	155.0	149.0	136.4	124.6
1986	120.3	120.1	118.5	116.4	114.5	108.5	103.4	95.7	90.6	86.6	81.0	84.0
1987	93.3	102.8	108.9	97.5	88.4	71.4	65.3	69.0	73.5	89.2	66.2	33.7
1988	18.5											

Source: Commodity Exchange, Inc. N.Y. (COMEX) T 144

COPPER

U.S. Salient Statistics of Copper In Thousands of Metric Tons

	New Copper Produced						Imports[3]		Exports		Stocks—Dec 31			Appar. Consumption[6]	
	From Domestic Ores														
Year	Mines	Smelters	Refineries	From Foreign Ores[2]	Total New	Secondary Recovered[7]	Unmanufactured	Refined	Ore, Concentrate[4]	Refined[5]	N.Y. Commodity Exch	Primary Producers (Refined)	Blister & Materials in Solution	Refined Copper (Reported)	Primary & Old Copper[8]
1977	1,364	1,265	1,280	77	1,357	410	396	351	91	47	167	212	314	1,622	2,032
1978	1,358	1,270	1,327	122	1,449	502	532	403	187	92	163	153	263	1,819	2,321
1979	1,447	1,313	1,413	104	1,517	604	282	204	231	74	90	64	275	1,735	2,432
1980	1,181	994	1,126	89	1,215	613	555	427	107	14	163	49	272	1,862	2,179
1981	1,538	1,295	1,419	125	1,544	592	447	331	151	24	170	151	277	2,025	2,292
1982	1,147	941	1,050	176	1,227	518	525	258	195	31	248	268	233	1,658	1,762
1983	1,038	888	1,028	154	1,182	449	675	460	50	81	371	154	174	1,804	2,013
1984	1,103	990	1,090	75	1,165	461	552	445	69	91	251	125	245	2,123	2,107
1985	1,106	939	1,004	54	1,057	503	444	378	116	38	109	66	146	1,976	2,144
1986[1]	1,147	908	1,073	N.A.	1,073	479	598	502	174	12	84	36	135	2,102	2,136
1987[9]	1,260	970	1,150		1,150			300	900	10	60	30	131	2,170	2,110

[1] Preliminary. [2] Also from matte, etc., refinery reports. [3] For consumption. [4] Blister (copper content). [5] Ingots, bars, etc. [6] Withdrawals from total supply on domestic account. [7] From old scrap only. [8] Old scrap only. [9] Estimate. *Source: Bureau of Mines.*

T 133

Consumption of Refined Copper[2] in the United States In Thousands of Metric[4] Tons

	By-Products						By Class of Consumer							
Year	Cathodes	Wire Bars	Ingot & Ingot Bars	Cakes & Slabs	Billets	Other	Wire Mills	Brass Mills	Chemical Plants	Secondary Smelters	Foundries	Miscellaneous	Total Consumption
1977	965.5	861.3	90.2	115.0	103.3	11.2	1,511.2	628.6	N.A.	6.6	N.A.	N.A.	2,185.0
1978[4]	1,026.1	794.7	111.9	117.1	114.6	24.9	1,517.4	619.2	.4	7.5	12.4	32.3	2,189.3
1979	1,099.0	701.9	92.1	105.6	129.5	30.4	1,499.6	610.2	.4	6.3	11.9	30.1	2,158.4
1980	960.2	583.0	67.6	84.3	117.4	49.7	1,308.9	511.6	.3	5.0	10.9	25.3	1,862.1
1981	1,198.9	489.2	66.7	121.8	101.9	46.7	1,449.6	536.2	.4	5.4	11.3	22.2	2,025.2
1982	1,211.0	195.1	45.1	92.4	82.2	32.4	1,232.8	393.2	.4	4.4	7.6	19.7	1,658.1
1983	1,448.1	77.4	53.2	115.3	101.8	8.2	1,269.9	500.3	.6	3.2	11.3	18.8	1,803.9
1984	1,563.4	70.3	64.2	115.8	139.6	22.8	1,401.7	514.0	.7	5.3	19.8	34.6	1,976.0
1985[1]	1,715.6	52.5	107.3	81.6	127.9	16.5	1,491.8	560.3	.9	5.1	20.6	22.9	2,101.5
1986[3]							1,560	550		48.0			2,170

[1] Preliminary. [2] Primary & secondary. [3] Estimate. [4] Data prior to 1978 are in thousands of short tons. *Source: Bureau of Mines*

T 134

U.S. Mine Production of Recoverable Copper, by Selected States In Thousands of Metric Tons

Year	Arizona	California	Colorado	Idaho	Michigan	Missouri	Montana	Nevada	New Mexico	Pennsylvania	Tennessee	Utah	Maine	Other States[2]	Total
1977	838.0	.2	1.7	3.7	38.4	10.6	78.2	60.8	149.4	—	5.6	176.1	1.2	.3	1,304.4
1978	891.4	N.A.	1.2	3.9	N.A.	10.8	67.3	20.5	127.8	—	11.3	186.3	—	37.1	1,357.6
1979	949.0	N.A.	.4	3.6	N.A.	13.0	69.9	N.A.	164.3	—	N.A.	193.1	—	53.3	1,446.6
1980	770.1	N.A.	.5	3.1	N.A.	13.6	37.7	N.A.	149.4	—	N.A.	157.8	—	48.9	1,181.1
1981	1,040.8	N.A.	N.A.	4.2	N.A.	8.4	62.5	N.A.	154.1	—	N.A.	211.3	—	56.8	1,538.2
1982	769.5	N.A.	.6	3.1	N.A.	7.9	65.0	N.A.	N.A.	—	N.A.	189.1	—	111.8	1,147.0
1983	678.2	N.A.	N.A.	3.6	—	7.7	33.3	N.A.	N.A.	—	N.A.	169.8	—	145.5	1,038.1
1984	746.5	N.A.	N.A.	3.7	—	5.8	N.A.	N.A.	N.A.	—	N.A.	N.A.	—	317.6	1,091.3
1985	796.6	N.A.	N.A.	3.6	N.A.	13.4	15.1			Not Available				277.1	1,105.8
1986[1]	789.2						Not Available						—	358.1	1,147.3
1987[3]							Not Available							480.0	1,250.0

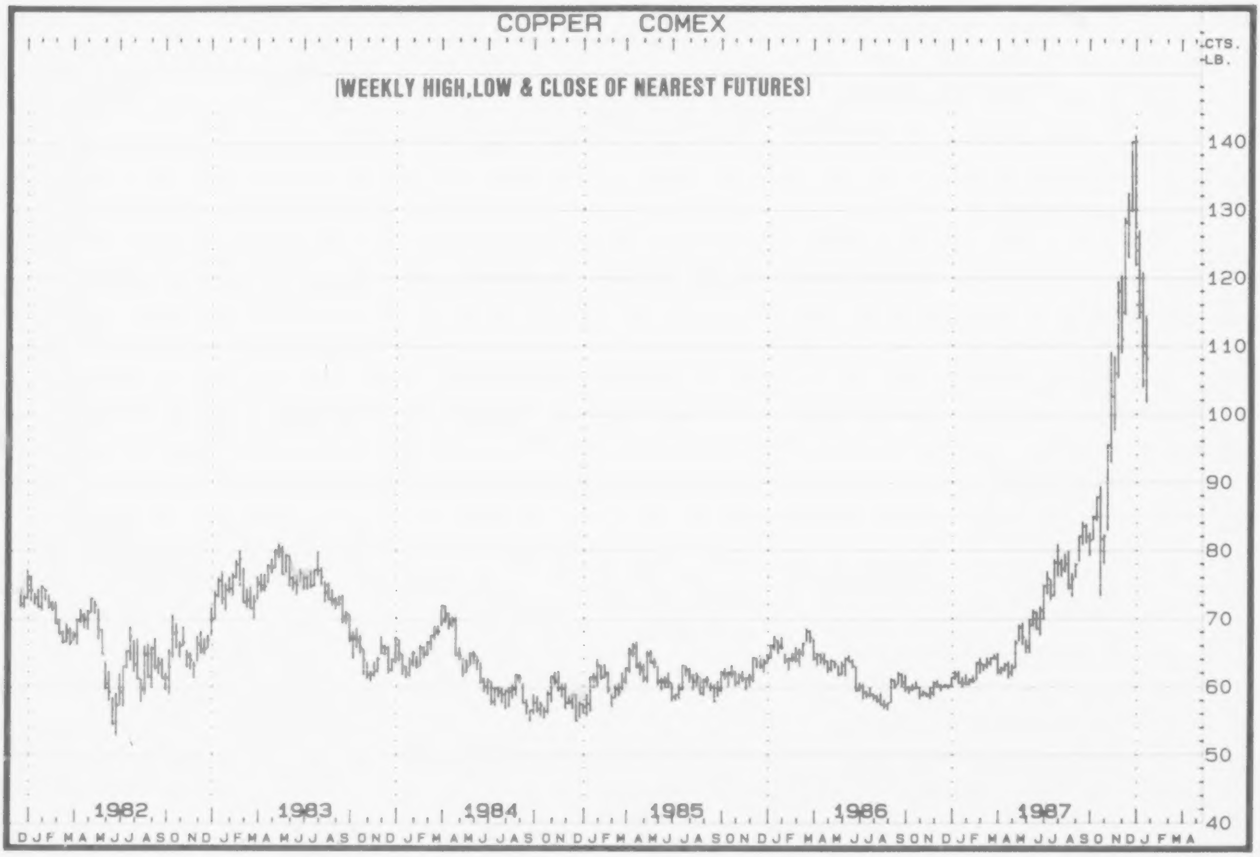
[1] Preliminary. [2] Also includes N.A. States. [3] Estimate. *Source: Bureau of Mines*

T 135

U.S. Scrap Copper Intake by Refiners in Thousands of Short Tons

Year	Jan	Feb.	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1983	23.2	22.1	25.5	25.5	22.0	22.5	20.1	21.0	20.1	25.4	20.6	18.2	266.2
1984	17.6	19.2	19.9	21.3	22.0	18.7	18.4	19.8	17.3	22.3	21.2	15.0	232.9
1985	28.1	29.4	32.0	23.9	40.7	27.5	25.6	24.2	28.5	36.1	31.8	35.1	363.0
1986[1]	34.2	31.3	30.4	34.3	33.2	32.7	29.0	26.1	34.8	37.1	28.1	33.0	384.2

[1] Preliminary. *Source: American Bureau of Metal Statistics, Inc.*

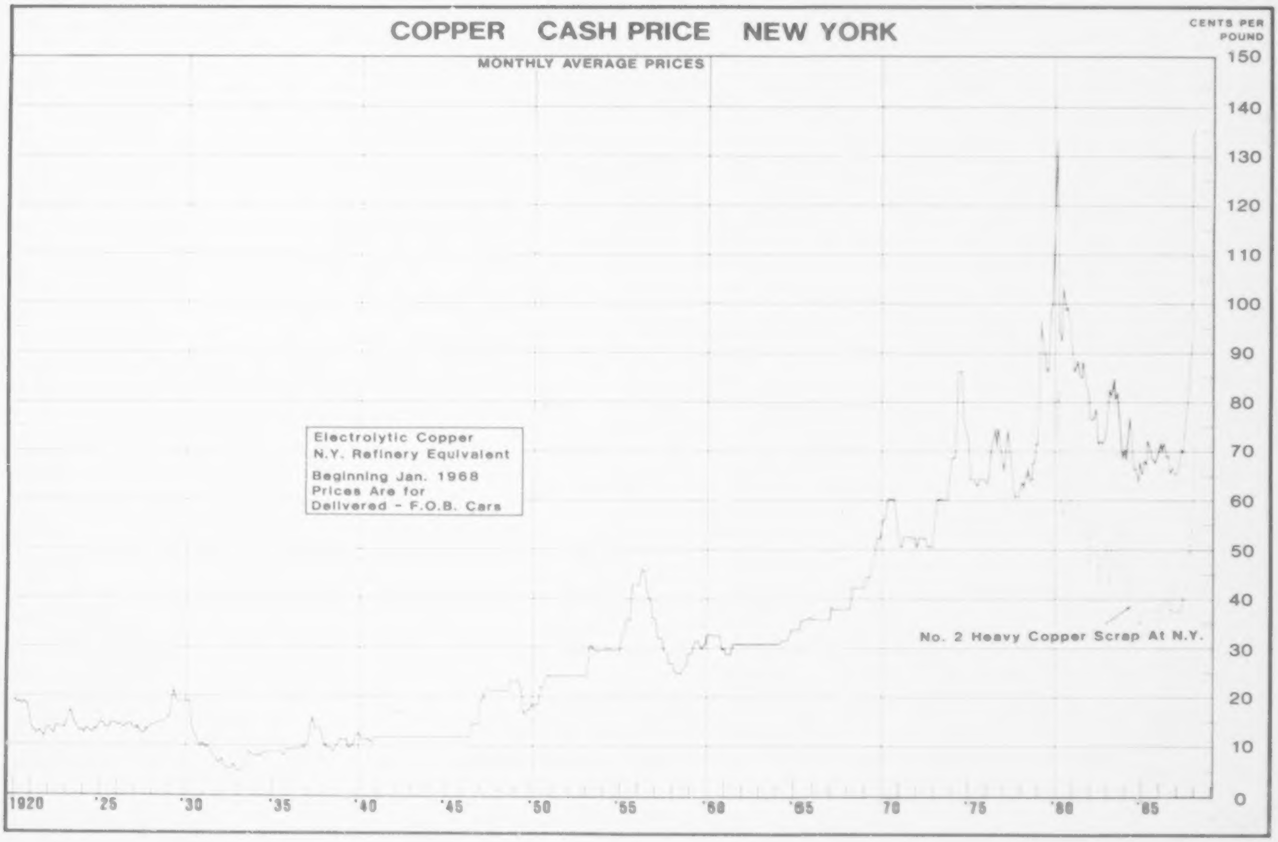


High, Low & Closing Prices of May Copper Futures on the Commodity Exch., Inc., N.Y. (COMEX) ¢ Lb.

Year of Delivery		Year Prior to Delivery										Delivery Year					Life of Delivery Range
		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1982	High	100.00	99.65	96.00	94.10	92.80	95.50	87.40	84.90	81.70	80.50	77.70	76.25	71.75	71.25	72.90	115.20
	Low	92.80	94.00	91.35	86.70	85.20	85.80	79.80	79.40	74.85	74.00	73.00	71.10	66.70	66.10	66.65	66.10
	Close	98.85	95.20	93.20	86.80	93.10	87.45	82.10	81.65	77.35	77.30	76.35	71.15	67.55	70.70	66.70	—
1983	High	82.25	81.20	82.70	71.30	75.60	72.00	71.90	71.50	70.85	72.65	77.95	81.45	78.40	78.70	80.90	108.30
	Low	77.00	76.80	73.00	60.80	65.35	63.25	62.40	62.00	64.30	67.00	71.00	75.00	70.80	73.80	76.70	62.00
	Close	78.00	80.70	72.60	67.60	68.65	67.20	62.95	67.95	68.90	70.70	76.60	75.20	75.15	77.40	78.05	—
1984	High	85.40	86.00	87.60	83.80	85.05	83.00	78.95	71.70	70.65	69.40	68.10	67.30	71.80	71.75	65.65	88.60
	Low	78.05	81.70	83.70	80.25	80.60	77.30	69.80	64.90	64.00	64.60	62.50	63.90	65.60	63.90	61.40	61.40
	Close	82.60	84.30	84.80	81.25	82.45	77.60	70.25	66.10	69.15	68.30	65.70	66.10	71.75	64.45	64.55	—
1985	High	71.30	79.10	73.35	71.75	67.10	66.60	65.15	62.75	62.70	60.90	64.40	64.20	63.15	66.55	65.30	92.00
	Low	65.60	72.00	69.10	65.35	61.80	62.00	58.90	58.45	59.05	56.40	56.20	57.95	59.10	60.80	60.60	56.20
	Close	71.75	72.40	70.95	67.35	61.90	66.05	60.55	62.75	59.85	57.85	63.15	59.60	62.60	60.95	62.20	—
1986	High	65.65	68.50	68.00	64.35	66.15	64.70	62.90	63.85	63.45	65.35	68.00	67.50	69.15	66.30	63.95	69.15
	Low	62.80	63.55	63.00	61.65	61.50	61.60	60.00	61.15	60.80	61.60	64.50	64.55	63.60	62.15	61.60	60.00
	Close	65.65	63.55	63.95	62.00	63.45	63.05	60.55	61.50	62.10	64.45	67.15	66.05	66.15	62.25	62.85	—
1987	High	70.10	67.75	65.55	65.50	62.10	60.95	63.45	61.55	61.85	62.00	62.85	64.15	65.20	63.70	69.45	70.10
	Low	66.35	63.80	63.65	61.30	59.90	58.60	57.75	59.25	59.65	60.40	60.60	60.85	62.40	61.30	62.40	57.75
	Close	68.30	63.80	64.35	61.60	60.10	59.40	61.80	59.80	61.55	61.75	60.95	63.40	62.45	62.30	65.70	—
1988	High	65.65	64.50	68.35	69.50	74.25	75.65	80.30	86.50	104.40	108.20						
	Low	63.25	62.80	63.50	66.05	69.90	70.50	71.90	71.80	78.50	89.10						
	Close	63.25	63.30	65.35	69.20	73.70	72.70	77.90	77.20	95.60	108.20						

Source: Commodity Exchange, Inc. of N.Y. (COMEX)

T.141



Producers' Prices of Electrolytic (Wirebar) Copper, Delivered U.S. Destinations In Cents Per Pound

Year	Jan	Feb	Mar.	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec.	Average
1978	63.63	63.59	62.35	64.63	64.90	66.78	63.99	67.34	67.63	70.13	71.68	71.73	66.53
1979	76.15	89.41	94.65	98.66	91.04	87.66	86.02	89.94	95.07	98.84	98.44	106.08	92.75
1980	118.05	133.83	106.23	94.61	93.16	92.39	103.10	100.60	98.73	99.41	96.98	89.20	102.19
1981	88.64	86.07	87.32	88.44	86.33	85.68	84.71	87.98	85.63	83.28	82.09	80.94	85.59
1982	79.42	79.35	76.45	76.99	78.78	71.43	71.78	71.83	71.37	71.92	72.28	73.17	74.56
1983	79.03	82.72	81.09	82.44	84.80	80.90	81.81	79.80	76.75	71.58	68.64	70.43	78.33
1984	69.08	69.51	74.18	76.58	71.56	69.19	66.34	66.44	65.39	63.92	67.71	65.28	68.77
1985	66.23	68.32	67.19	72.17	71.89	68.86	68.53	68.32	67.66	68.60	68.37	70.10	68.85
1986	71.57	70.21	71.78	70.55	68.69	69.15	65.47	64.12	66.82	65.61	65.06	65.91	67.91
1987	67.27	67.87	70.50	69.83	73.54	76.71	83.10	84.94	88.04	91.52	109.59	134.71	84.80

Source: American Metal Market T.136

Month-End Open Interest of Copper Futures at COMEX In Contracts

Year	Jan	Feb	Mar.	Apr	May	June	July	Aug	Sept	Oct.	Nov.	Dec
1979	53,776	56,481	55,719	48,857	45,572	43,992	39,372	58,966	63,825	58,451	62,659	64,363
1980	63,132	60,834	41,546	31,618	31,923	32,454	37,303	38,497	46,737	54,201	52,666	44,225
1981	47,300	47,641	48,699	49,784	52,527	52,325	54,011	54,781	57,153	58,054	52,654	52,226
1982	56,469	60,458	62,817	67,700	74,353	65,938	66,049	64,615	69,845	79,365	85,824	92,146
1983	113,044	121,875	116,706	105,451	99,198	101,350	109,829	106,882	108,357	104,204	104,087	106,898
1984	115,648	100,663	107,730	96,293	92,254	82,836	82,946	84,991	83,606	88,418	83,433	86,502
1985	94,398	82,182	82,195	85,676	82,369	84,913	78,227	75,187	77,106	75,868	76,106	77,790
1986	89,213	79,497	91,606	73,828	71,286	65,698	62,060	60,118	65,370	70,396	74,353	77,988
1987	75,844	77,526	76,775	67,052	72,441	89,640	87,353	64,979	62,572	49,383	44,425	41,206

Source: Commodity Exchange, Inc. of N.Y. (COMEX) T.142

U.S. Imports (for Consumption) of Copper (Unmanufactured), by Sources and Types

In Thousands of Metric Tons

Year	Ore & Concentrates	Blister	Matte	Refined	Scrap	Australia	Canada	Mexico	W. Germany	Chile	Peru	Philippines	Yugoslavia	Zaire	Zambia	South Africa	Total U.S. Imports
1979	22.4	68.1	.4	215.2	22.2	2.1	89.0	8.5	6.1	116.2	52.8	15.4	3.4	1.5	15.9	2.0	328.3
1980[2]	52.4	44.5	.4	426.9	22.8	5.4	152.4	8.3	.5	126.6	52.5	8.9	4.5	5.0	64.9	2.2	547.0
1981	39.1	30.1	2.7	330.6	27.0	1.5	108.5	23.8	—	137.8	52.0	20.4	2.4	24.7	44.1	—	429.6
1982	118.1	97.4	4.1	258.4	28.1	3.7	111.0	64.4	—	233.0	26.8	27.1	—	19.6	10.5	—	506.0
1983	90.6	46.4	3.3	459.6	23.1	—	153.8	44.7	—	292.4	38.9	11.4	—	29.1	24.7	14.0	622.9
1984	11.1	38.9	2.1	444.7	23.0	3.8	177.6	9.5	—	149.4	63.0	6.7	—	28.0	59.5	.5	519.8
1985	2.9	13.0	4.0	377.7	23.0												420.6
1986[1]	4.2	34.5	.7	502.0	27.2	1.1	223.5	24.1	.3	182.5	46.9	1.0	—	36.0	28.7	10.1	568.7
1987[3]	3	25	2	300	24												

Note: Includes refined; black, blister, & converter; scrap; & copper content of ore, matte, and regulus. [1] Preliminary. [2] Prior to 1980, data are for general imports. [3] Estimate. *Source: Department of Commerce; Bureau of Mines* T.137

United States Exports of Refined Copper[1] to Selected Countries In Thousands of Metric Tons

Year	Total U.S. Exports	United Kingdom	China Mainland	Belgium	Brazil	Canada	France	W. Germany	India	Italy	Netherlands	Taiwan	Sweden	Mexico	Japan
1979	73.7	6.5	3.1	2.5	6.2	4.5	12.5	3.5	—	11.4	6.6	1.2	2.8	.5	2.0
1980	14.5	2.0	—	.6	1.5	2.9	1.9	.8	.1	1.4	.6	.3	.1	.9	.8
1981	24.4	1.3	—	–	.8	6.4	1.1	1.1	—	.7	—	—	—	7.2	3.9
1982	30.6	1.3	16.1		.4	2.8	1.1	1.9	.1	.1	3.3	—	—	—	.8
1983	81.4	.4	2.2	.7	—	1.7	.6	2.2	—	—	60.6	1.0	.1	5.3	5.7
1984	91.4	.7	.1	—	—	2.9	.8	1.2	—	—	6.4	3.2	—	2.8	71.2
1985	37.9	.7	—	.5	—	3.5	.3	1.3			17.3	1.5		4.2	5.0
1986[2]	12.5	2.2	—	—	.1	3.7	.4	1.4	.1	.1	–	2.2	.1	.2	—
1987[3]	12	2				5	1	1						1	2

[1] Bars, ingots or other forms. [2] Preliminary. [3] Estimate. *Source: Department of Commerce* T.138

Dealers' Buying Price of No. 2 Heavy Copper Scrap at N.Y. In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	47.07	58.82	65.46	68.93	63.14	59.05	57.79	58.85	62.03	62.89	62.25	65.00	60.94
1980	74.91	82.35	70.30	60.18	57.60	56.50	65.36	64.88	64.21	65.37	66.08	58.36	65.51
1981	57.60	55.50	57.14	59.50	58.20	55.32	52.68	53.50	53.00	50.16	48.08	46.00	53.89
1982	57.43	57.20	53.76	53.99	53.38	43.24	47.12	46.49	47.83	48.79	48.61	50.75	50.73
1983	42.55	46.71	51.50	51.50	53.74	54.50	54.50	53.54	51.74	48.12	43.30	42.50	49.52
1984	41.17	40.60	43.59	44.50	43.30	42.21	39.36	38.50	38.08	36.20	34.50	35.67	39.81
1985	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50	37.50
1986	38.23	39.50	39.50	39.50	39.50	39.50	39.50	37.79	37.50	37.50	37.50	37.50	38.59
1987	37.50	37.50	37.86	39.50	41.15	42.50	44.68	49.07	49.50	53.32	55.39	64.73	46.06

Source: American Metal Market T.140

Volume of Trading of Copper Futures at COMEX In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	154,378	228,837	234,044	234,554	212,934	186,097	139,912	210,387	208,869	200,123	163,074	145,732	2,301,033
1980	243,069	205,232	185,692	121,708	102,054	130,678	148,698	125,062	169,370	132,850	127,110	156,556	7,848,080
1981	116,295	131,960	143,662	140,605	104,376	158,396	125,109	190,763	148,456	114,960	144,453	128,345	1,647,380
1982	112,118	166,562	135,434	179,854	174,157	249,276	197,828	245,973	169,909	231,771	273,546	226,257	2,362,625
1983	306,001	381,645	320,574	278,655	226,482	309,540	213,832	295,470	188,201	230,063	289,111	147,340	3,186,914
1984	199,461	259,881	217,635	269,765	196,382	223,551	152,424	215,226	149,465	170,568	279,151	172,856	2,514,311
1985	254,052	261,784	167,686	310,487	215,079	209,506	146,396	195,882	138,803	178,728	200,142	166,007	2,444,552
1986	190,983	206,513	197,818	240,770	106,750	200,547	89,818	145,468	123,779	121,361	162,963	85,439	1,872,209
1987	124,845	178,598	165,216	170,827	208,696	306,029	272,794	214,181	193,035	276,491	278,985	179,481	2,569,178

Source: Commodity Exchange, Inc. of N.Y. (COMEX) T.143

COPPER

Exports of Refined Copper from the United States In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1975	19.7	20.8	14.3	24.9	21.3	13.5	9.8	6.7	11.5	12.5	9.0	8.4	172.4
1976	11.2	8.5	10.8	10.9	8.6	9.4	8.7	9.4	10.0	11.5	7.3	6.8	113.1
1977	3.7	1.8	3.6	5.2	5.2	5.2	5.5	1.6	4.4	4.6	5.0	6.9	52.7
1978	4.7	4.9	11.9	7.3	11.4	10.1	7.2	10.2	22.2	5.3	5.3	8.8	109.3
1979	9.8	9.4	11.6	10.0	8.9	8.7	4.8	2.9	2.9	2.7	7.3	1.5	88.7
1980	1.0	1.4	1.9	1.5	1.5	2.0	1.9	.9	.4	.5	1.0	3.4	17.2
1981	2.9	2.5	5.8	1.2	.9	3.5	1.3	1.7	3.0	.7	2.1	1.8	28.1
1982	.4	.6	.9	1.0	1.6	1.6	2.9	5.4	9.9	8.6	.8	1.1	35.0
1983	13.4	.7	1.5	2.0	3.2	2.9	18.1	13.4	4.1	14.2	2.8	11.2	87.5
1984	17.5	14.4	8.9	6.8	14.7	1.6	14.0	2.3	2.2	1.9	2.8	6.9	93.9
1985[1]	2.0	3.3	7.7	3.7	1.3	3.9	5.7	6.3	1.0	1.3	.9	1.1	48.1
1986[1]	1.3	1.5	1.2	1.0	2.4	.9	.8	1.8	1.7	.6	.9	.8	14.9
1987[1]	.8	1.9	2.4	2.8	.8	1.1	.6	.5	.8				

[1] Preliminary. *Source: Department of Commerce* T.139

Refined Copper Stocks in the U.S.A. In Thousands of Short Tons (Recoverable Copper Content)

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1975	194.9	242.7	259.2	297.8	320.6	334.6	338.2	349.5	341.8	312.3	314.9	324.6
1976	360.7	363.4	370.9	347.8	343.0	325.2	317.1	350.4	355.8	356.1	372.8	416.5
1977	473.8	469.3	487.0	472.3	442.1	447.6	435.0	408.9	370.6	409.4	418.0	456.9
1978	471.1	488.7	491.6	470.2	480.5	465.5	464.0	430.9	418.0	405.9	416.4	408.9
1979	367.0	318.4	287.5	262.1	237.4	197.8	176.0	174.6	158.0	154.6	148.6	167.3
1980	186.3	203.5	228.2	237.1	269.1	277.3	295.7	310.6	301.0	274.6	265.0	246.0
1981	253.0	261.6	249.4	236.8	245.5	243.4	264.7	276.9	276.0	275.5	281.6	301.2
1982	338.6	351.9	375.9	387.3	409.8	422.5	448.1	463.7	449.9	436.2	438.2	470.8
1983	484.5	489.6	501.6	508.9	524.1	519.4	498.7	509.0	522.7	509.1	514.2	505.2
1984	475.3	497.8	499.6	483.3	478.3	463.4	483.2	493.4	490.7	467.1	475.2	457.3
1985	469.7	452.9	380.9	368.2	358.4	363.2	344.1	331.4	310.9	275.7	257.3	264.1
1986	270.7	271.0	261.6	242.0	231.1	201.4	188.0	209.6	214.4	188.1	189.0	211.3
1987[1]	238.4	211.5	206.8	170.1	175.7	161.6	136.4	141.0	140.4	151.3	121.1	

[1] Preliminary. *Source: American Bureau of Metal Statistics, Inc.* T.145

Refined Copper Stocks Outside the U.S.A. In Thousands of Short Tons (Recoverable Copper Content)

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1975	591.2	628.8	624.5	655.8	723.1	766.0	784.7	861.5	933.4	1,007	1,072	1,108
1976	1,135	1,150	1,149	1,086	1,048	1,045	1,040	1,080	1,112	1,102	1,102	1,141
1977	1,117	1,158	1,200	1,166	1,183	1,185	1,195	1,210	1,229	1,247	1,240	1,225
1978	1,201	1,231	1,139	1,139	1,104	1,099	1,052	1,059	1,001	960.2	962.0	963.1
1979	942.2	878.2	862.4	765.1	758.8	756.7	727.2	687.1	696.6	648.2	635.4	641.3
1980	619.5	598.3	560.9	534.6	516.5	525.9	531.2	530.9	553.2	527.9	489.1	472.6
1981	476.2	485.2	471.0	463.0	458.8	449.8	446.0	454.9	454.7	433.4	419.4	403.0
1982	432.5	446.3	448.4	459.6	452.0	458.7	479.3	492.0	503.6	522.7	575.1	642.9
1983	699.9	760.8	766.4	759.1	795.5	780.0	722.2	683.0	757.4	767.2	765.2	810.4
1984	832.8	817.5	730.0	653.0	618.5	519.3	551.9	526.5	516.0	493.9	483.9	430.0
1985	425.0	420.7	385.7	361.9	364.6	380.4	368.8	464.0	546.7	558.4	533.6	486.6
1986	502.8	501.5	451.8	435.7	422.6	418.7	396.8	430.4	455.1	455.4	458.5	464.8
1987[1]	473.3	467.6	410.6	397.2	385.9	350.9	331.0	317.5	328.1	321.5		

[1] Preliminary. *Source: American Bureau of Metal Statistics, Inc.* T.150

Refined Copper Production Outside the U.S.A. In Thousands of Short Tons (Recoverable Copper Content)

	Refined													Crude	
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Pri-mary	Sec-ondary
1978	387.3	344.0	395.9	348.7	401.9	388.1	371.9	348.4	350.0	381.9	364.5	351.5	4,434	—4,868—	
1979	359.8	347.9	360.1	336.9	345.1	364.9	358.1	377.2	366.5	400.9	388.0	382.6	4,388	—4,791—	
1980	384.2	382.8	408.4	398.3	418.7	396.8	392.2	402.9	386.1	394.4	371.8	389.9	4,727	—4,968—	
1981	359.7	347.9	393.6	390.0	388.0	391.4	377.0	377.7	378.8	379.9	366.9	393.8	4,545	—4,891—	
1982	398.2	381.0	442.6	391.8	365.2	403.9	368.4	365.8	386.1	405.8	411.8	372.6	4,693	—5,065—	
1983	386.8	366.3	411.8	400.0	401.2	418.0	381.9	404.3	395.9	404.5	393.1	409.5	4,773	—5,201—	
1984	380.3	376.9	412.4	375.1	374.1	382.5	357.4	381.5	373.8	405.2	380.8	358.7	4,559	—5,114—	
1985	371.6	338.8	388.5	376.1	377.4	351.4	384.2	385.6	380.4	387.6	385.5	394.9	4,522	—5,217—	
1986	366.5	351.5	401.7	409.7	373.1	361.2	361.7	374.8	400.3	407.4	396.4	403.6	4,608	—5,132—	
1987	385.9	375.4	410.2	411.0	387.0	393.9	383.2	378.4	388.7						

¹ Preliminary *Source: American Bureau of Metal Statistics, Inc.* T.148

Refined Copper Production in the U.S.A. In Thousands of Short Tons (Recoverable Copper Content)

	Refined													Crude	
Year	Jan	Feb	Mar	Apr	May	June	July	Aug.	Sept.	Oct.	Nov	Dec.	Total	Pri-mary	Sec-ondary
1978	129.0	112.5	143.2	141.0	145.3	135.1	96.1	138.9	144.9	163.4	162.4	133.3	1,645	—1,434—	
1979	135.6	135.8	152.2	149.8	154.6	149.4	132.3	144.9	137.5	148.7	170.0	155.5	1,766	—1,542—	
1980	161.0	149.5	162.3	170.4	158.7	167.2	52.4	28.7	27.3	61.0	85.8	136.9	1,361	—1,205—	
1981	133.5	116.3	152.2	155.8	135.0	158.3	131.7	124.0	140.5	127.3	124.9	147.9	1,647	—1,429—	
1982	117.5	123.4	121.5	116.4	107.5	108.6	81.8	77.6	80.6	80.1	92.1	90.8	1,198	—1,026—	
1983	97.3	100.6	131.9	125.5	112.2	114.5	73.1	90.6	91.2	110.4	89.1	100.2	1,237	—1,077—	
1984	98.8	100.7	117.1	120.5	127.9	125.6	123.0	126.1	101.8	119.5	95.4	101.4	1,358	—1,270—	
1985	113.5	101.2	118.8	122.4	124.1	100.8	99.9	96.8	93.0	112.9	119.7	106.7	1,310	—1,387—	
1986	109.5	98.3	103.5	115.0	122.4	112.1	109.3	108.9	106.7	114.4	116.6	138.1	1,355	—1,323—	
1987	118.0	110.5	105.4	127.7	118.5	95.5	107.7	106.4	121.8	131.3					

¹ Preliminary *Source: American Bureau of Metal Statistics, Inc.* T.149

Refined Copper Deliveries to Fabricators in the U.S.A.

In Ths. of Short Tons (Recoverable Copper Content)

Year	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	137.7	141.3	190.2	148.7	175.9	159.8	133.4	168.9	179.2	170.4	177.7	179.7	1,963
1979	191.1	174.8	193.5	182.4	204.7	192.4	166.4	179.3	157.4	190.4	161.4	156.7	2,151
1980	173.5	153.7	193.5	167.8	176.3	175.0	98.7	85.0	83.7	106.6	128.7	154.5	1,697
1981	153.0	154.2	196.5	165.1	169.1	158.8	150.6	152.7	157.5	159.5	131.6	131.2	1,880
1982	134.6	112.2	131.5	114.2	121.0	111.4	106.2	110.6	131.8	113.3	78.4	119.2	1,384
1983	126.2	141.1	185.3	156.0	165.9	164.4	91.0	105.2	141.2	137.1	110.2	145.3	1,669
1984	118.3	146.1	185.7	184.4	190.7	163.8	150.7	159.3	166.0	167.1	149.5	124.2	1,906
1985	170.2	188.7	159.8	153.0	144.3	135.2	122.3	130.0	153.3	151.5	137.9	120.7	1,767
1986	123.8	120.1	150.5	155.3	164.5	131.5	113.1	127.1	160.7	141.1	114.7	128.4	1,631
1987	160.2	138.7	166.9	152.3	165.6	152.3	124.9	151.6	139.3	187.9			

¹ Preliminary *Source: American Bureau of Metal Statistics, Inc.* T.147

Refined Copper Deliveries to Fabricators Outside the U.S.A.

In Ths. of Short Tons (Recoverable Copper Content)

Year	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	338.5	370.0	422.6	372.1	400.8	426.0	362.4	402.9	382.7	376.8	360.2	376.8	4,592
1979	424.2	395.9	460.4	342.0	349.1	383.3	376.8	357.7	408.5	390.2	377.6	386.4	4,658
1980	386.2	403.2	400.0	407.6	396.9	376.6	357.3	346.7	389.5	406.5	374.4	375.8	4,653
1981	336.8	353.7	383.2	385.4	380.8	382.7	346.0	355.9	393.4	369.5	373.9	364.5	4,426
1982	373.4	380.1	423.6	387.4	348.3	365.4	341.4	342.8	354.9	343.5	331.3	301.6	4,294
1983	303.2	322.9	371.1	325.7	392.2	454.4	407.4	308.3	360.7	389.4	350.2	397.4	4,383
1984	375.0	448.8	477.8	377.1	453.1	358.8	372.5	371.5	382.7	394.6	420.7	360.6	4,793
1985	356.6	372.1	408.2	369.8	379.8	395.9	300.4	319.9	384.6	422.0	419.6	375.9	4,505
1986	364.5	396.9	403.4	403.2	375.6	387.9	331.0	334.1	376.2	384.9	380.9	380.8	4,519
1987¹	386.0	413.0	413.9	406.8	409.9	401.3	393.2	356.5	396.2				

¹ Preliminary *Source: American Bureau of Metal Statistics, Inc.* T.146

Corn

World coarse grains production (corn, sorghum, barley, oats, millet, and mixed grains) in 1987/88 was projected at 792.3 million tonnes, virtually unchanged from the previous season.

Corn output world-wide was estimated by USDA at 440.7 million tonnes, 7 percent below a year earlier. The U.S. remained the largest producer, with 41 percent of the total. China was second, with a crop estimated at 77 million tonnes, 9 percent above the previous season. Global corn use was projected at 462.8 million tonnes, up 1 percent from a year earlier.

World corn trade in 1987/88 was expected to increase by 4 percent to 65.4 million tonnes. Sharply higher U.S. exports accounted for the gain, as non-U.S. shipments were anticipated to decline by 9 percent. Argentina's exports were forecast to rise, but this was offset by Thailand's lower shipments. Japan remained the largest importer, taking 16.3 million tonnes, 24 percent of the world's imports.

The USSR has been a variable importer. Soviet corn production was estimated at 15 million tonnes, up 19 percent from the previous season. The country's corn imports were projected at 7 million tonnes, down 12 percent. As recently as 1984, the Soviets imported 20.3 million tonnes. South Korea has been a fast-growing market, and in 1987/88 was expected to import 5.6 million tonnes of corn, 21 percent more than the previous season.

With a drop in world production and increased utilization, global ending stocks were expected to decline by 14 percent to 139.8 million tonnes. This was lower than the previous season, but still far above the level three years before. About 75 percent of the world's corn stocks were held in the U.S.

U.S. corn production in 1987/88 was 7.06 billion bushels, down 14 percent from the 1986/87 bumper crop. Planted acreage was 66 million, 13 percent less than a year earlier. Growers harvested 59.6 million acres, compared to 68.2 million in 1986/87. Weather in the 1987 growing season was perfect, and the national average yield was 119.4 bu./acre, a record. Producers were active participants in the 20-percent acreage reduction program, which was very attractive with a 15-percent paid acreage diversion option. And the government's Conservation Reserve Program, which removes erodible land from production, was popular. As growers have reduced plantings on marginal land, yields have increased substantially.

Record U.S. carry-in stocks of 4.88 billion bushels in 1987/88 meant that the season's total corn supply was 11.95 billion bushels, only 3 percent less than the 1986/87 record. Widespread availability of corn and low prices indicated that usage would expand to 6.13 billion bushels, up 4 percent from 1986/87. The USDA estimated that corn feeding would total 4.9 billion bushels, up 4 percent from the previous season. One factor contributing to increased corn use was its price advantage over wheat. In the Great Plains and Southeast, corn competes with wheat in rations for livestock and poultry. Large supplies and the use of generic certificates to redeem loans indicated corn feeding would remain active over the season. And production of poultry and pork was expanding.

Corn used for food, seed, and industrial purposes continued to rise. The USDA projected use in this category at 1.23 billion bushels, or almost 3 percent above a year earlier. Use of corn in sweeteners such as fructose has risen rapidly, but the market is now approaching the saturation point.

U.S. corn exports were projected at 1.7 billion bushels, up 13 percent from a year earlier, and the best level since 1984. The fastest growing markets for U.S. corn are South Korea, Mexico, and Japan, and sales to Eastern Europe have expanded. With decreased export competition from Thailand, U.S. shipments to Asian markets could show further growth. The USSR bought more U.S. corn in 1987, but the country's purchases could slip in 1988, because of its large supplies of low-quality feed wheat. China also reentered the U.S. market, and had the potential to be a major importer.

Domestic corn usage together with exports was estimated at 7.83 billion bushels, up almost 6 percent from the previous season. Ending stocks in 1987/88 were projected by USDA at 4.12 billion bushels, down 16 percent from a year earlier. Free stocks of corn, or those not under one of the government programs, were expected to make up about 26 percent of total stocks. Commodity Credit Corporation stocks were anticipated to be large, but redemptions would allow part of those supplies to reach the market.

U.S. Government Program

The price support loan rate for the 1988 crop is $1.77/bu., 5 cents below 1987. The target price is $2.93. To qualify for program benefits, producers must reduce base acreage by 20 percent. No paid acreage diversion had been announced at this writing.

Futures Markets

Corn futures and options are traded on the Chicago Board of Trade (CBOT), and futures are on the Mid-America Commodity Exchange (MCE).

World Production of Corn or Maize In Millions of Metric Tons

Crop Year	United States	Argentina	Brazil	Mexico	South Africa	France	China	India	Italy	Bulgaria	Hungary	Yugoslavia	Romania	Indonesia	USSR	World Total
1984–5	194.9	11.5	22.0	9.9	8.1	10.4	73.4	8.4	6.7	3.1	6.4	11.3	13.3	5.3	13.6	458.6
1985–6[1]	225.5	12.1	21.0	10.5	8.1	12.4	63.8	6.9	6.3	3.0	6.5	9.9	14.0	4.6	14.4	480.1
1986–7[2]	209.6	9.0	26.5	10.0	7.8	11.0	69.0	7.2	6.3	1.4	6.6	12.0	15.5	5.5	12.5	474.1
1987–8[2]	182.0	9.5	24.0	10.1	8.5		78.0			2.8	5.6				15.0	446.1

[1] Preliminary [2] Estimated *Source: Foreign Agricultural Service, U.S.D.A.*

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World Coarse Grains Supply & Demand In Millions of Metric Tons/Hectares

Crop Year	Area Harvested	Yield	Production	World Trade[1]	Utilization Total[2]	Ending Stks[3]	Stocks as % of Util
1981/82	350.1	2.19	766.3	96.6	738.2	120.4	16.3
1982/83	338.7	2.31	783.7	89.9	752.1	152.0	20.2
1983/84	334.6	2.05	687.0	93.0	761.9	77.1	10.1
1984/85	334.1	2.44	813.8	100.6	783.0	107.9	13.8
1985/86	340.6	2.47	842.1	83.2	766.7	183.1	23.9
1986/87[4]	336.7	2.47	833.0	83.7	802.8	213.3	26.6
1987/88[5]	327.0	2.44	797.6	85.8	817.6	193.4	23.7

Note: "Stocks as percent of utilization" represent the ratio of marketing year ending stocks to total utilization. [1] Trade data as expressed in this table exclude intra-EC trade. The trade year is October/September. [2] For countries for which stocks data are not available (excluding the USSR) utilization estimates represent "apparent" utilization, i.e., include annual stock level adjustments. [3] Stocks data are based on an aggregate of differing local marketing years and should not be construed as representing world stock levels at a fixed point in time. Stocks data are not available for all countries and exclude those such as the People's Republic of China and parts of Eastern Europe. World Stock Levels have been adjusted for estimated year-to-year changes in USSR grain stocks, but do not purport to include the absolute level of USSR grain stocks. [4] Preliminary. [5] Projection. *Sources: Prepared or estimated on the basis of official statistics of foreign governments, other foreign source materials, reports of U.S. Agricultural Attaches and Foreign Service Officers, results of Office Research and Related Information.* 150a

Acreage and Supply of Corn in the United States In Millions of Bushels

Year Beginning Sept.[5]	Planted All Purposes	Harvested For Grain	Harvested For Silage	Harvested For Forage	Yield, Per Harv Acre-Bus.	Carry-over, Sept. 1 On Farms[5]	Carry-over, Sept. 1 Off Farms[3]	Carry-over, Sept. 1 Others[5]	Carry-over, Sept. 1 Total	Grain Production	Imports[2]	Total (All Supply Grain)
	In Millions of Acres											
1981–2	84.1	74.5	8.3	.4	108.9	489.9	— 544.4—		1,034	8,119	1.2	9,154
1982–3	81.9	72.7	8.3	.3	113.2	1,243.3	— 930.7—		2,537	8,235	.7	10,772
1983–4	60.2	51.5	7.8	.3	81.1	1,510.4	—1,609.5—		3,523	4,175	2.7	7,701
1984–5	80.5	71.9	7.5	.3	106.7	347.9	— 375.4—		1,006	7,674	3.5	8,684
1985–6	83.3	75.1	7.2	.3	118.0	678.9	— 701.8—		1,648	8,865	10.6	10,536
1986–7[1]	76.7	69.2			119.3	2,049.4	—1,990.1—		4,040	8,253	2.1	12,294
1987–8[4]	66.0	59.6			120.3	2,284.5	—2,597.5—		4,882	7,166	2.0	12,050

[1] Preliminary. [2] Includes grain equivalent of cornmeal & flour. [3] Interior mills & elevators and terminal mkts. [4] Estimate. [5] Data prior to 1986–7 are as of Oct 1. *Source: Economic Research Service, U.S.D.A.* T 152

U.S. Corn Supply and Disappearance In Millions of Bushels

Year & Periods Begin. Sept. 1	Supply: Beginning Stocks	Supply: Production	Supply: Imports	Supply: Total Supply	Disappearance, Domestic Use: Food, Alcohol & Industrial	Disappearance, Domestic Use: Seed	Disappearance, Domestic Use: Feed & Residual	Disappearance, Domestic Use: Total	Disappearance: Exports	Disappearance: Total Disappearance	Ending Stocks: Gov't Owned[1]	Ending Stocks: Privately Owned[2]	Ending Stocks: Total
1983–4	3,523	4,175	2.7	7,701	956.0	18.9	3,818	4,793	1,902	6,694	201.5	804.8	1,006
Sep.–Nov.	3,523	4,175	.5	7,698	238.6	—	1,311	1,550	497.0	2,047	1,227	4,425	5,652
Dec.–Feb.	5,652	—	.6	5,652	222.8	—	1,056	1,279	508.5	1,787	1,214	2,651	3,865
Mar.–May	3,865	—	1.0	3,866	247.3	16.6	939.5	1,204	517.3	1,721	195.0	1,950	2,145
June–Aug.	2,145	—	.6	2,146	247.3	2.3	511.1	760.7	378.7	1,139	201.5	804.8	1,006
1984–5	1,006	7,674	3.5	8,684	1,070	21.2	4,079	5,170	1,865	7,036	224.9	1,423	1,648
Sep.–Nov.	1,006	7,674	.9	8,681	249.7	—	1,294	1,544	506.2	2,050	206.7	6,424	6,631
Dec.–Feb.	6,631	—	.4	6,632	241.5	—	1,183	1,424	583.9	2,008	209.7	4,414	4,623
Mar.–May	4,623	—	1.1	4,624	283.8	17.0	1,009	1,310	478.9	1,789	221.7	2,614	2,836
June–Aug.	2,836	—	1.1	2,837	295.0	4.2	592.8	892.0	296.4	1,188	224.9	1,423	1,648
1985–6[4]	1,648	8,877	10.6	10,536	1,140	19.5	4,095	5,255	1,241	6,496	545.7	3,494	4,040
Sep.–Nov.	1,648	8,877	1.0	10,526	278.0	—	1,216	1,494	417.7	1,911	388.6	8,226	8,615
Dec.–Feb.	8,615	—	1.3	8,616	264.0	—	1,300	1,564	465.3	2,029	509.4	6,078	6,587
Mar.–May	6,587	—	2.3	6,589	293.0	16.1	1,086	1,395	204.4	1,599	550.9	4,439	4,990
June–Aug.	4,990	—	6.0	4,996	305.0	3.4	494.3	802.7	153.8	956.5	545.7	3,494	4,040
1986–7[4]	4,040	8,253	2.1	12,294	1,175	15.6	4,717	5,908	1,504	7,412	1,443	3,439	4,882
Sep–Nov.	4,040	8,253	.8	12,293	280.0	—	1,388	1,668	321.1	1,989	968.2	9,336	10,304
Dec.–Feb.	10,304	—	.3	10,304	270.0	—	1,471	1,741	315.4	2,056	1,362	6,885	8,248
Mar.–May	8,248	—	.5	8,249	310.0	15.4	1,091	1,416	500.2	1,917			6,332
June–Aug.	6,332	—	.5	6,333	315.0	.2	767.8	1,083	367.7	1,451			4,882
1987–8[4]	4,882	7,166											
Sep.–Nov.	4,882	7,166											

[1] Uncommitted inventory. [2] Includes quantity under loan & farmer-owned reserve. [3] Preliminary. [4] Estimate.
Source: Economic Research Service, U.S.D.A. T 154

CORN

Corn Production Estimates and Cash Prices in the U.S.

Crop Year	Corn for Grain Production Estimates — In Thousands of Bushels						St. Louis No. 2 Yellow	Gulf Ports No. 2 Yel (Export)	Los Angeles No. 2 Yel.	Season Farm Avg. Price[1]	K.C. White No. 2	Value of Production (Million Dollars)
	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Final	$ per bushel					
1978–9	6,503,190	6,797,650	6,823,720	6,890,310	7,081,849	7,267,827	2.46	2.75	3.39	2.25	2.93	16,281
1979–0	7,108,938	7,268,175	7,390,365	7,585,535	7,763,771	7,928,139	2.68	2.98	3.74	2.52	4.70	19,904
1980–1	6,645,842	6,534,370	6,466,622	6,461,244	6,647,534	6,639,396	3.40	3.59	4.48	3.11	4.96	20,571
1981–2	7,734,941	7,940,421	8,081,444	8,097,231	8,200,951	8,118,650	2.63	2.87	3.92	2.50	2.60	20,406
1982–3	8,315,088	8,318,678	8,314,938	8,329,808	8,397,334	8,235,101	2.87	3.06	3.93	2.55	3.35	22,070
1983–4	5,236,558	4,390,443	4,259,408	4,120,983	4,203,777	4,174,678	3.49	3.67	4.22	3.21	4.70	13,568
1984–5	7,667,721	7,551,991	7,497,831	7,527,206	7,649,995	7,674,020	2.81	3.00	3.78	2.63	3.27	20,085
1985–6	8,265,554	8,468,504	8,602,994	8,716,534	8,865,006	8,876,706	2.37	2.52		2.23		21,327
1986–7[2]	8,316,156	8,268,141	8,220,201	8,222,576	8,252,834		1.68	1.84		1.50		12,380
1987–8[2]	7,230,950	7,140,505	7,139,255	7,166,020						1.75		12,541

[1] Includes an allowance for unredeemed loan & purchase agreement deliveries valued at the average loan rate. [2] Preliminary.

Source: *Economics Research Service; Crop Reporting Board, U.S.D.A.*

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Production of Corn (For Grain) in the United States, by States In Millions of Bushels

Year	Illinois	Indiana	Iowa	Kansas	Kentucky	Michigan	Minn.	Missouri	Nebraska	No. Car.	Ohio	Pa.	South Dakota	Wisconsin	Texas
1978	1,240	669.6	1,478	153.0	119.9	194.4	643.8	200.1	762.8	121.6	379.1	115.9	177.6	294.0	144.0
1979	1,414	675.4	1,664	172.0	132.6	237.5	606.0	240.0	822.3	128.4	417.5	121.6	210.9	317.2	132.3
1980	1,066	602.9	1,463	110.9	103.6	247.0	610.1	109.7	603.5	103.8	440.7	96.0	121.9	348.4	117.0
1981	1,454	654.0	1,759	148.1	149.0	273.6	744.7	213.4	791.2	140.9	360.0	134.4	180.6	378.0	127.5
1982	1,499	790.0	1,578	139.1	154.5	293.2	734.5	199.0	748.0	155.4	456.0	126.1	193.7	361.8	119.7
1983	624.1	340.9	743.9	85.6	46.1	165.6	367.1	72.9	470.5	76.8	224.0	72.5	104.4	223.1	104.8
1984	1,247	705.5	1,445	119.4	146.0	220.1	689.1	154.4	806.2	145.8	460.2	148.5	186.3	344.5	144.2
1985	1,535	756.5	1,707	152.1	159.1	286.7	724.5	272.8	953.6	128.4	511.8	151.8	252.0	358.5	156.5
1986	1,404	695.4	1,627	181.6	139.8	257.3	707.6	280.7	896.0	93.8	476.2	127.7	233.7	365.8	149.0
1987[1]	1,214	644.3	1,337	150.0	117.3	185.3	650.0	247.3	806.0	75.6	369.0	110.2	226.8	336.3	136.3

[1] Preliminary. *Source:* *Crop Reporting Board, U.S.D.A.*

T.157

Corn (Shelled & Ear) Stocks in the United States In Millions of Bushels

Year	On Farms				Off Farms				Total Stocks			
	Mar. 1	June 1	Sept. 1	Dec. 1	Mar. 1	June 1	Sept. 1	Dec. 1	Mar. 1	June 1	Sept. 1	Dec. 1
1985	N.A.	2,008	N.A.	N.A.	N.A.	828	N.A.	N.A.	N.A.	2,836	1,648	8,615
1986	N.A.	3,143	2,049	6,796	N.A.	1,847	1,990	3,510	6,587	4,990	4,040	10,305
1987[1]	5,024	3,492	2,285	6,100	3,224	2,840	2,597	3,667	8,248	6,332	4,882	9,767

[1] Preliminary. *Source:* *Crop Reporting Board, U.S.D.A.*

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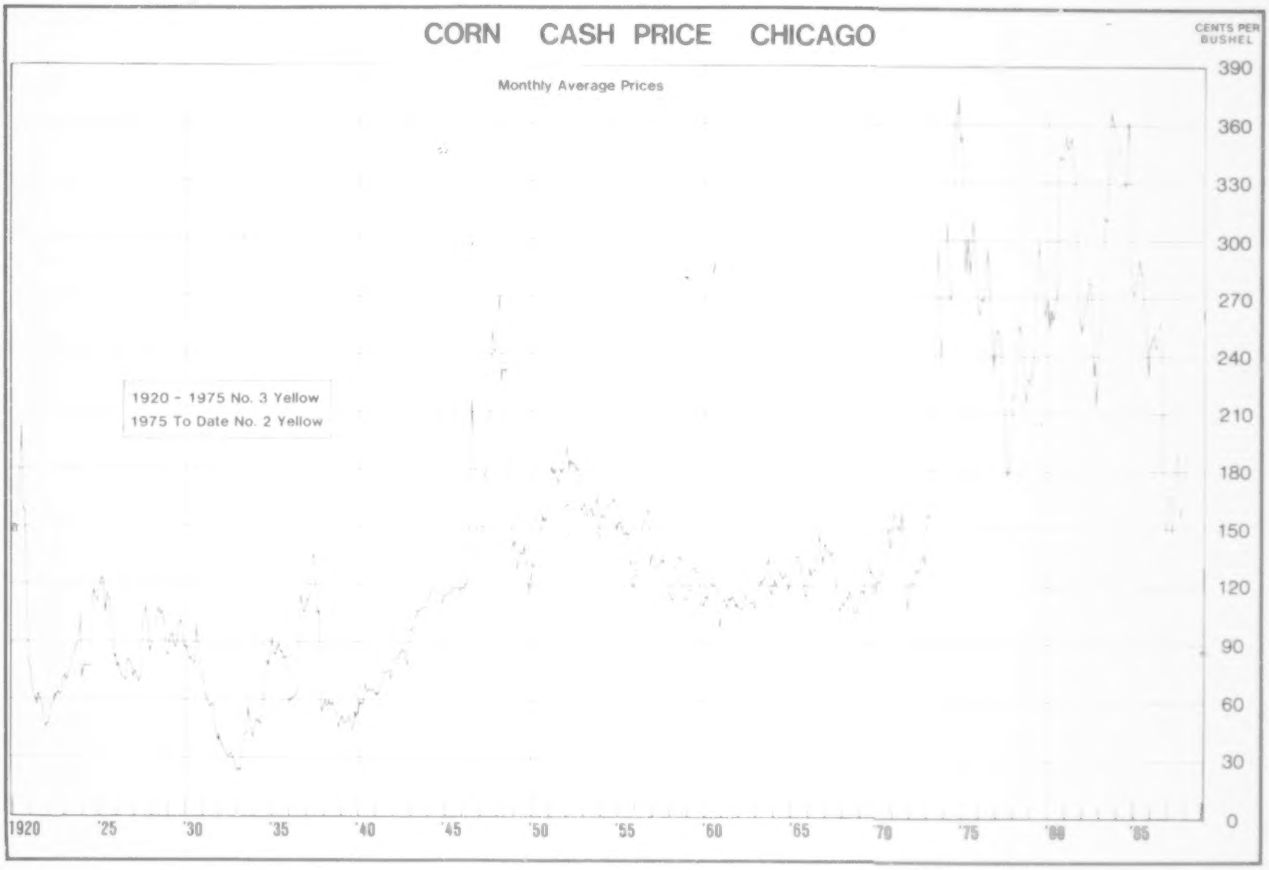
Distribution of Corn in the United States In Millions of Bushels

Year Beg. Sept.	Wet-Milled Products					Dry-Milled Products			Total Shipments	Seed	Livestock Feed[3]	Exports (Incl. Grain Equiv. of Pdt's.)	Total Utilization	Domestic Disappearance
	HFCS	Glucose & Dextrose	Starch	Alcohol		Alcohol		Alkaline Cooked Pdt's.						
				Fuel	Beverage[2]	Fuel	Beverage							
1979–0	127	170	130	10	20	0	20	158	640	20.0	4,549	2,415	7,604	5,189
1980–1	165	183	120	20	20	15	20	160	718	20.2	4,157	2,408	7,283	4,875
1981–2	185	183	130	55	30	25	10	162	797	19.4	4,169	2,010	6,975	4,966
1982–3	215	188	127	100	30	40	10	170	895	14.5	4,521	1,834	7,249	5,416
1983–4	256	189	147	120	30	40	10	164	975	19.1	3,818	1,902	6,694	4,793
1984–5	310	187	143	140	30	90	10	160	1,091	21.2	4,079	1,865	7,036	5,170
1985–6	328	188	152	155	30	115	10	161	1,160	19.5	4,095	1,241	6,496	5,255
1986–7[1]	339	185	155	160	30	125	10	161	1,191	15.6	4,717	1,504	7,412	5,908
1987–8[4]	348	186	160	207		145		163	1,225		4,800	1,700	7,725	6,025

[1] Preliminary. [2] Also includes nonfuel industrial alcohol. [3] Feed & waste (residual, mostly feed). [4] Forecast.

Source: *Economics Research Service, U.S.D.A.*

T.155



Average Cash Price of Corn, No. 2 Yellow (15 Days) at Chicago In Cents Per Bushel

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Average[1]
1979–0	273	259	269	254	265	260	261	270	270	308	336	344	275
1980–1	343	343	354	356	349	348	353	347	341	341	309	272	344
1981–2	261	260	252	263	263	267	269	273	272	261	236	217	263
1982–3	207	238	244	254	274	298	312	311	328	333	360	352	298
1983–4	347	351	338	330	329	352	361	361	362	345	323	295	346
1984–5	281	279	272	279	279	284	290	285	283	276	250	231	279
1985–6	230	246	249	251	248	244	246	257	255	206	172	151	208
1986–7[2]	150	167	167	158	149	160	167	189	188	170	156	162	152
1987–8[2]	171	176											

[1] Weighted average by carlot sales. [2] Preliminary. *Source: Economic Research Service, U.S.D.A.* T 161

Average Cash Price of Corn, No. 2 Yellow at Omaha In Dollars Per Bushel

Crop Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Average
1979–80	2.37	2.32	2.36	2.26	2.33	2.23	2.32	2.43	2.50	2.81	2.98	3.01	2.44
1980–81	3.16	3.34	3.30	3.29	3.18	3.17	3.24	3.24	3.19	3.15	2.79	2.51	3.17
1981–82	2.44	2.39	2.37	2.47	2.45	2.48	2.61	2.65	2.65	2.54	2.23	2.23	2.48
1982–83	2.12	2.35	2.37	2.42	2.62	2.82	3.09	3.10	3.11	3.18	3.39	3.32	2.73
1983–84	3.23	3.24	3.17	3.11	3.03	3.25	3.33	3.35	3.37	3.22	3.11	2.94	3.23
1984–85	2.71	2.61	2.55	2.60	2.61	2.68	2.73	2.68	2.70	2.61	2.39	2.35	2.65
1985–86	2.26	2.28	2.36	2.33	2.31	2.31	2.34	2.43	2.42	2.01	1.61	1.41	2.25
1986–87	1.40	1.55	1.54	1.44	1.39	1.47	1.57	1.76	1.77	1.59	1.47	1.51	1.53
1987–88	1.57	1.68											

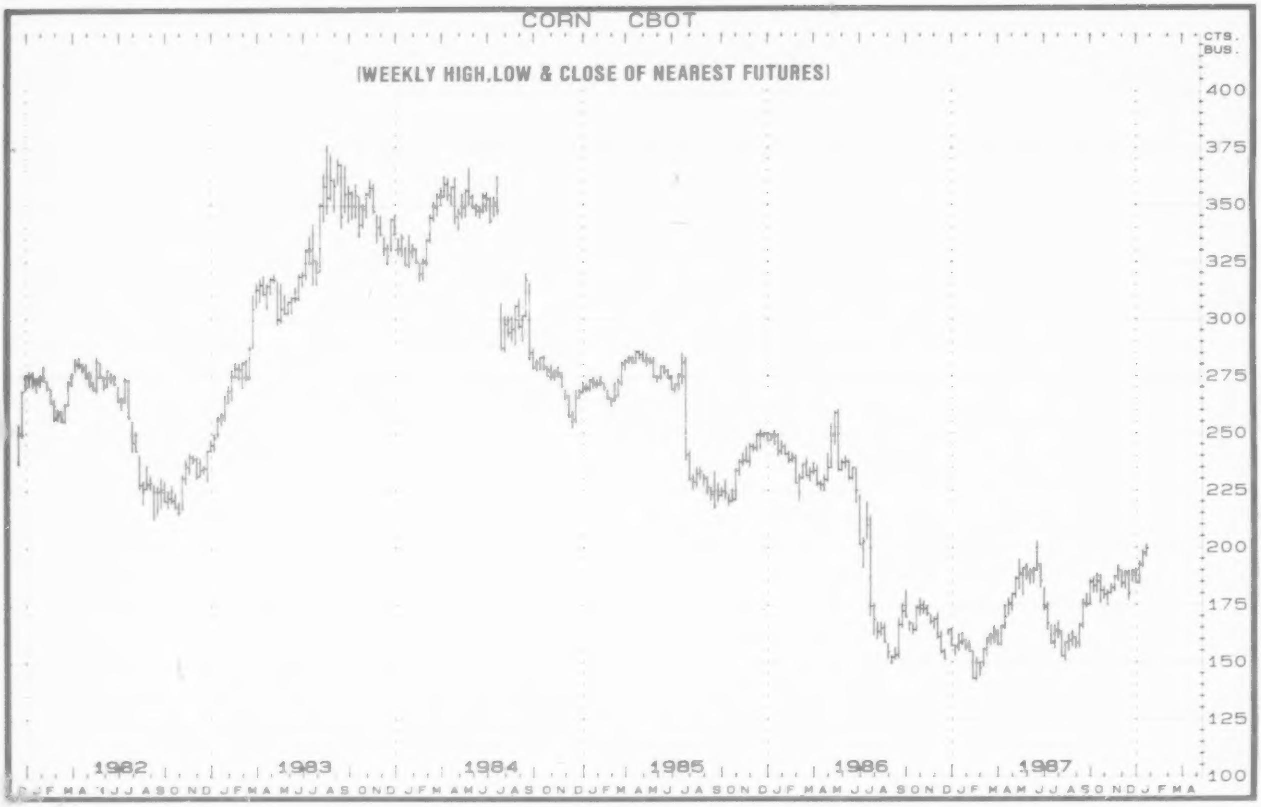
Source: Economic Research Service, U.S.D.A. T 161a

CORN

Weekly Outstanding Export Sales & Accumulated Exports—U.S. Corn In Thousand Metric Tons

Marketing Year 1987/88 Week Ending	1987/88 Outst. Sales	1987/88 Accum. Exports	Marketing Year 1986/87 Week Ending	1986/87 Outst. Sales	1986/87 Accum. Exports	Marketing Year 1985/86 Week Ending	1985/86 Outst. Sales	1985/86 Accum. Exports
Sept. 3,'87	6,462	212	Sept. 4,'86	6,309	72	Oct. 3	9,449	202
10	6,874	818	11	6,547	381	10	9,439	746
17	6,633	1,682	18	6,728	926	17	9,122	1,631
24	6,620	2,434	25	6,912	1,497	24	8,992	2,389
Oct. 1	6,456	3,264	Oct. 2	6,850	2,255	31	9,950	3,110
8	6,074	4,104	9	6,712	2,924	Nov. 7	9,618	4,350
15	5,635	5,106	16	6,504	3,699	14	9,579	5,428
22	7,118	5,994	23	6,336	4,491	21	8,864	6,831
29	7,966	6,529	30	5,880	5,307	28	8,602	8,229
Nov. 5	8,030	7,358	Nov. 6	6,005	5,842	Dec. 5	8,458	9,352
12	8,032	8,170	13	5,997	6,536	12	7,992	10,523
19	7,785	8,785	20	5,968	7,274	19	8,806	11,652
26	8,146	9,585	27	5,751	7,936	26	8,389	12,203
Dec. 3	7,554	10,702	Dec. 4	5,536	8,790	Jan. 2	8,116	12,852
10	7,065	11,630	11	5,454	9,466	9	7,306	14,109
17	7,344	12,443	18	5,868	9,901	16	6,765	15,079
24	7,195	13,215	25	5,807	10,661	23	6,759	15,964
31	6,876	13,879	Jan. 1,'87	5,978	11,119	30	6,313	16,887
Jan. 7,'88			8	5,645	11,807	Feb. 6	5,658	17,944
14			15	5,307	12,302	13	5,255	18,693
21			22	5,330	12,898	20	4,878	19,491
28			29	5,289	13,463	27	4,178	20,410
			Feb. 5	5,292	14,139	Mar. 6	3,790	21,027
			12	5,443	14,797	13	3,507	21,682
			19	5,637	15,510	20	3,073	22,071
			26	7,581	16,061	27	2,714	22,594
			Mar. 5	7,880	16,666	Apr. 3	2,465	23,123
			12	7,766	17,469	10	2,334	23,534
			19	9,806	18,166	17	2,301	23,771
			26	9,605	19,294	24	2,353	24,016
			Apr. 2	9,506	20,296	May 1	2,661	24,361
			9	9,637	21,135	8	3,162	24,538
			16	10,164	21,993	15	2,856	24,773
			23	9,253	23,338	22	2,836	25,094
			30	8,504	24,676	29	2,836	25,341
			May 7	7,758	25,876	June 5	3,061	25,787
			14	8,216	27,090	12	2,799	26,173
			21	7,453	28,408	19	2,851	26,370
			28	7,240	28,828	26	2,789	26,697
			June 4	6,532	29,737	July 3	2,923	27,094
			11	6,174	30,520	10	2,874	27,353
			18	5,531	31,340	17	2,746	27,623
			25	5,240	32,018	24	2,902	27,701
			July 2	5,488	32,600	31	2,832	28,001
			9	5,368	33,145	Aug. 7	2,855	28,270
			16	4,829	33,925	14	2,614	28,688
			23	4,250	34,841	21	2,667	28,835
			30	3,748	35,859	28	2,543	29,227
			Aug. 6	3,193	36,550			
			13	2,647	36,964			
			20	2,081	37,650			
			27	1,200	38,586			

Source: U.S.D.A. Export Sales Report (U.S.D.A.) T-161b



High, Low & Closing Prices of May Corn Futures at Chicago In Cents per Bushel

Year of Delivery	Year Prior to Delivery										Delivery Year					Life of Delivery Range
	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
1984 High	325	324½	320	301½	347	390	385½	359¾	361½	346	338¾	336	357¼	362¼	366	390
Low	297½	312¼	296¼	286¼	285	341½	345½	337	335¾	329½	324¾	320	331	340	338½	285
Close	317¾	316¼	297¼	289¾	342½	374½	358½	341¼	340¼	340¼	332¾	332½	353¼	344½	365¾	—
1985 High	312¾	322	321	330	328¼	302¾	301¼	295¾	292¼	285¼	280¼	281	282	286	284¾	330
Low	300	310	304¾	309¾	289¾	291¼	286½	285½	283¼	272¾	274	269¾	270	280¼	279	269¾
Close	309¼	314	316½	326¾	297¼	295½	286½	287½	284½	276	278½	271¼	281¼	283¼	283	—
1986 High	282¾	284	279½	274½	264¾	242	243½	247¾	250¾	256½	255¼	245¾	235¾	241	260½	291¼
Low	274¾	275½	264½	262½	238½	231	231½	238¼	241	242½	243	226¾	222½	224¾	233	222½
Close	282¾	279	267½	263¾	240½	235	240¾	246½	243½	252¼	244¾	227	234¾	238¼	257	—
1987 High	225½	223¼	226½	212½	198¼	192½	193½	192½	192	184½	168¼	165¼	166	179	195	226½
Low	214	207	207½	195¾	185½	182¾	180	180¼	183¾	167	160¼	149¼	152¾	157¼	178¼	149¼
Close	219	223¼	208¼	196	186¾	183	191½	187¼	184	167½	163	153¾	162½	179	181½	—
1988 High	187	199	221	225½	202¼	188½	195¾	203	204¼	202						
Low	175½	182½	195¼	198½	184¼	177½	180	189	185¼	189½						
Close	184¾	197½	203	202¾	188¾	181¾	193¼	190	202	191¼						

Source: Chicago Board of Trade

T.162

U.S. Exports[2] of Corn (Including Seed), By Country of Destination In Thousands of Metric Tons

Yr. Begin October	USSR	China	Canada	Egypt	West Germany	Greece	Israel	Italy	Japan	Mexico	Netherlands	Korea	Spain	United Kingdom	Total Exports
1982–3	3,082	2,161	250	1,516	332	221	420	89	13,179	3,987	421	3,904	2,132	755	47,105
1983–4	6,283	0	166	1,303	(EC-3,927)				13,775	2,806		2,971	1,972		46,985
1984–5[1]	14,400	0	320	1,399	(EC-2,459)				11,165	1,401		1,453	1,936		46,276

[1] Preliminary. [2] Exports of grain only. Does not include corn exported under the food for relief or charity program.

Source: Foreign Agricultural Service, U.S.D.A.

T.165

CORN

Volume of Trading of Corn Futures at Chicago In Millions of Bushels

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1979	1,734	2,281	2,739	3,302	3,751	5,705	5,806	3,999	3,135	4,522	3,794	2,592	43,359
1980	3,287	3,227	3,493	3,690	3,265	3,362	6,722	7,310	6,287	6,609	6,455	6,027	59,735
1981	4,848	4,495	5,036	5,222	3,867	4,785	5,459	5,019	3,626	3,127	3,913	3,978	53,375
1982	2,802	3,390	3,634	3,355	2,754	3,538	3,122	3,552	3,127	3,239	4,634	2,594	39,741
1983	3,638	3,114	5,355	4,440	3,943	4,511	5,627	7,431	5,882	5,180	5,734	3,518	59,623
1984	3,518	3,866	4,248	4,407	4,259	4,111	4,868	3,975	3,289	2,883	3,619	2,439	45,543
1985	2,406	2,369	2,746	2,608	2,346	2,494	3,231	2,743	2,629	2,597	3,545	2,248	31,964
1986	2,629	2,153	2,203	2,840	3,029	2,390	2,605	2,217	2,486	3,103	2,591	2,555	30,801
1987	2,343	2,901	3,088	3,646	3,579	3,984	2,978	2,498	2,620	3,380	2,923	2,327	36,266

[1] Preliminary. *Source: Chicago Board of Trade* T 164

Month–End Open Interest of Corn Futures at Chicago In Millions of Bushels

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1980	838.9	799.0	789.8	787.7	766.7	721.6	1,048.8	1,382.4	1,398.0	1,587.9	1,575.5	1,315.0
1981	1,216.5	1,107.5	1,002.4	846.5	737.5	572.6	568.8	637.8	637.7	724.7	674.6	630.7
1982	708.0	625.6	650.0	610.0	594.5	552.6	581.8	596.6	594.7	663.5	712.1	657.8
1983	776.9	778.5	872.5	832.4	760.0	727.2	792.5	1,127.1	1,134.4	1,163.4	1,138.0	1,062.1
1984	1,022.3	964.0	1,034.3	901.5	776.8	717.8	704.0	712.2	730.6	738.4	657.8	649.4
1985	659.2	588.2	629.0	587.6	507.9	499.2	603.1	661.4	605.7	698.0	714.4	622.1
1986	587.2	545.1	559.5	574.2	574.0	564.3	558.7	594.0	671.7	792.1	677.4	605.5
1987	673.9	705.5	719.0	690.1	628.6	593.7	586.2	568.8	629.4	679.7	672.9	638.3

Source: Chicago Board of Trade T 163

Corn Price Support Data in the United States

Year Begin Oct 1	National Avg Loan Rate	Grain Reserve Loan Rate	Target Price	Placed Under Loan	% of Production	Acquired by CCC	Total Deliveries[2]	Stocks at Close of Mkt. Year (Aug. 30): CCC Inventory	Under CCC Loan	Farmer Owned Reserve	Owned by CCC 9-30	Total Stocks	CCC Inventory As of Dec. 31: CCC Owned	Under CCC Loan
	¢ Bush.	¢ Bush.	¢ Bush.	Millions of Bushels				Millions of Bushels						
1980–1	225	240	235	840	12.6	1	42	237.8	100.8	185.4[4]	238	1,034	256.4	966.0
1981–2	240	255	240	1,978	24.1	172	45	302.4			302	2,537	248	1,234
1982–3	255	290	270	1,579	18.9	349	0	1,143			1,150	3,523	429	2,400
1983–4[1]	265		286	162	3.9	9		202			201	1,006	1,230	1,450
1984–5[1]	255		303	1,100	14.3	65		225			240	1,648	296	1,056
1985–6[1]	255		303	3,000	33.8	400		546			600	4,040	477	2,811
1986–7[1]	192		303					1,443				4,882		
1987–8[1]	182		303					1,700				4,325		

[1] Preliminary. [2] Includes "delivered to CCC" from original program and deliveries from reseal program and over deliveries as determined by weight of farm-stored grain when delivered to CCC. [3] Less than 500,000 bushels. [4] Called Reserve Corn under extended loan.
Source: Agricultural Stabilization and Conservation Service, U.S.D.A. T 159

Corn Under Price Support through the End of the Month (Cumulative Total from Current Season's Crop) In Millions of Bushels

Crop Year	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
1980–1		2.3	44.6	145.0	386.0	746.7	795.2	816.0	830.6	836.0	838.1			
1981–2		13.5	81.9	418.7	1,049	1,642	1,826	1,903	1,940	1,951	1,962			
1982–3		15.5	76.2	334.5	870.2	1,369	1,505	1,551	1,561	1,567	1,572			
1983–4		4	14.6	58.1	98.3	138.0	149.1	158.3	160.2	161.1	161.3			
1984–5		2.3	47.2	278.5	631.5	969.6	1,028	1,055	1,063	1,068	1070			
1985–6	11.1	56.9	369.8	1,069	2,016	2,055	2,828	2,916	2,996	3,278	3,040			
1986–7	8.1	59.2	535.6	1,583	2,810	3,922	4,455	4,612	4,765	4,814	4,839	4,850		
1987–8	3.8	108.9												

Source: U.S. Department of Agriculture T 158

CORN OIL

Supply & Distribution of Corn Oil In Millions of Pounds

Year Beginning Oct.	Supply				Disappearance									
					Food Uses					Non-Food Uses				
	Production	Imports	Stocks Oct. 1	Total Supply	Shortening	Margarine	Salad & Cooking Oil	Other	Total Food Uses	Foots & Loss	Other	Total Non-Food Uses	Total Domestic Disappearance	Total Exports & Shipments
1977–8	705	3	46	755	4	243	288	—	510	45	1	46	573	106
1978–9	736	—	73	809		223	314						613	126
1979–0	791	—	71	862		222	335						655	141
1980–1	864	—	66	930		217	383		625				672	181
1981–2	873	—	77	950		217	357		593				692	203
1982–3	981	—	55	1,036		217	395		637				723	223
1983–4	1,054	—	90	1,144		196	458		693				763	311
1984–5	1,195	—	71	1,265		206	511		774				930	260
1985–6	1,241	—	75	1,316		200	524						856	340
1986–7[1]	1,279	—	120	1,399									959	276
1987–8[2]	1,323	—	164	1,487									1,036	276

[1] Preliminary. [2] Forecast. *Source: Economic Research Service, U.S.D.A.*

T.166

Crude Corn Oil Production in the United States In Millions of Pounds

Crop Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1977–8	58.9	58.0	50.1	54.9	51.6	58.7	57.1	68.0	64.7	60.5	59.7	63.8	695.5
1978–9	65.4	59.8	55.8	47.6	54.9	69.4	67.4	69.7	60.6	61.5	63.9	60.3	736.3
1979–0	61.8	63.3	63.0	62.3	60.0	70.7	64.3	68.3	65.1	66.2	69.9	76.2	791.1
1980–1	80.6	68.0	59.0	65.8	63.6	76.2	69.6	74.3	76.1	76.2	76.4	77.8	863.6
1981–2	81.4	69.2	66.5	56.7	64.9	76.4	71.6	77.1	73.9	76.5	79.3	78.0	871.5
1982–3	79.2	72.6	78.4	78.9	73.1	88.2	79.8	85.9	83.6	82.7	92.0	88.2	982.6
1983–4	87.0	85.7	83.2	92.1	87.5	91.1	88.5	94.5	84.4	90.6	86.4	82.0	1,053
1984–5	88.8	75.5	89.6	87.7	84.2	107.3	107.0	110.1	107.7	130.1	101.9	104.0	1,194
1985–6[1]	114.2	101.5	97.1	72.8	97.9	102.2	109.8	118.4	106.3	108.6	119.9	104.1	1,253
1986–7[1]	127.6	114.8	107.8	97.3	92.4	106.2	97.7	107.9	99.1	104.8	95.9	119.5	1,271
1987–8[1]	121.5												

[1] Preliminary. *Source: Economic Research Service, U.S.D.A.*

T.167

U.S. Corn Oil Consumption in Refining In Millions of Pounds

Crop Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1983–4	82.4	82.4	81.6	72.6	64.2	91.8	75.1	85.9	74.6	85.1	93.0	86.5	1,053
1984–5	82.1	86.7	91.0	84.0	71.3	89.4	75.5	106.0	97.4	109.1	96.2	90.8	1,080
1985–6	106.0	95.8	87.1	94.1	87.8	100.9	95.1	103.4	91.2	105.2	97.4	98.1	1,162
1986–7[1]	101.2	98.9	98.3	95.7	98.3	104.0	88.7	83.1	90.9	82.6	77.1	92.3	1,022
1987–8[1]	99.2	90.5											

[1] Preliminary. *Source: Bureau of the Census*

T.167A

Corn Oil Spot Price, Crude, Wet Mill at Chicago In Cents Per Pound

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
1977–8	26.5	31.5	35.0	40.0	44.0	43.0	36.5	35.3	33.0	33.3	31.5	35.5	35.4
1978–9	34.0	35.0	31.0	35.0	34.0	33.3	32.1	33.0	30.0	31.0	32.3	32.5	32.8
1979–0	32.8	29.9	33.3	27.5	29.0	26.0	20.0	23.0	22.0	27.3	29.8	28.0	27.4
1980–1	28.0	27.5	28.0	26.3	25.0	23.8	25.5	24.4	24.5	25.8	22.3	21.5	25.2
1981–2	20.0	21.0	25.0	24.0	29.0	25.0	25.0	24.0	23.5	23.0	20.5	21.0	23.4
1982–3	23.0	23.8	24.0	22.5	24.5	21.5	21.0	22.5	22.0	20.0	25.0	36.0	23.8
1983–4	27.5	28.0	25.8	27.0	25.3	26.5	30.0	38.8	35.7	26.0	23.8	29.0	26.6
1984–5	30.5	34.2	30.7	28.7	30.0	31.0	32.5	31.5	30.8	N.A.	N.A.	N.A.	31.1
1985–6[1]	20.9[2]	20.2	20.1	20.8	18.7	17.1	17.8	18.0	17.3	17.0	16.7	16.7	17.0
1986–7[1]	19.6	20.5	21.5	22.5	24.6	22.7	20.9	21.4	22.9	21.5	20.0	19.1	21.4

[1] Preliminary. [2] Prior to Oct. 1985 prices are for F.O.B. Decatur (tank cars). *Source: Economic Research Service, U.S.D.A.*

T.168

Cotton

The USDA estimated that 1987/88 world cotton production would reach 77.05 million bales, up 11 percent from the previous season. A good portion of the increase was due to a larger U.S. crop, while Chinese production was also significantly higher. China's output was forecast at 18 million bales, 10 percent above 1986/87. Production in the USSR was projected at 11 million bales, down 6 percent. A series of unusual, late-season storms struck the USSR's crop during harvest.

World mill consumption of cotton was pegged at 82.36 million bales, down 1 percent from a year earlier. The 1986-87 cotton price rally allowed man-made fibers to become more price-competitive, thus slowing cotton mill use. But consumer preference for cotton clothing still kept the mill use rate relatively high. China, the world's largest cotton miller, used about 19.5 million bales in 1987/88. This was 7 percent lower than a year earlier, and was due to a 49-percent drop in Chinese stocks. Soviet mills were expected to consume 9.6 million bales, the same as the previous year.

World cotton trade in 1987/88 slowed by about 5 percent from the previous year. World exports were forecast at almost 24 million bales. The decline in trade was due to lower projected shipments by China, because of reduced availability. Chinese exports were estimated at 1.8 million bales, versus 3.2 million the previous season. Pakistan was expected to boost its exports by 11 percent to 3.1 million bales.

While the world cotton crop was larger, a decline in carry-in stocks (due to lower Chinese stocks) meant total supplies were 6 percent less than the previous season. With usage only slightly below a year earlier, projected ending stocks were 26.1 million bales, 18 percent less than the year before. China remained the largest storehouse of cotton, with 20 percent of the world's stocks. U.S. stocks amounted to 16 percent of world inventories.

The 1987/88 U.S. cotton crop was 14.72 million bales, 51 percent larger than a year earlier. Harvested area was 10 million acres, compared to 12 million in 1985/86. Weather in the key producing states was ideal, and the national average yield jumped to 700 pounds/acre, much above recent averages. States showing much higher crops included Texas, Mississippi, Louisiana, and Arkansas.

Domestic mill use in 1987/88 was projected to rise to 7.8 million bales. Mills continued to use cotton at a good rate, which reflected an ongoing consumer preference for cotton fiber. Retail sales data and large cotton fabric imports indicated strong demand by consumers. A bullish outlook was dampened by the stock market collapse, which suggested slower consumer spending ahead. Apparel sales were expected to decline, adversely impacting mill use.

U.S. cotton exports were projected to increase again in 1987/88, reaching 7.2 million bales, compared to 6.68 million the previous season. The major destinations were South Korea, Japan, and Taiwan. Since crops in India and the USSR were adversely affected by poor weather, it was possible that they would import U.S. cotton during the 1987/88 season.

U.S. ending stocks of cotton on August 1, 1988 were projected at 4.1 million bales, down 18 percent from the previous season.

U.S. Government Program

The 1988 cotton price-support loan rate is 51.8 cents/lb., compared to 52.25 cents in 1987. The target price is 77 cents, versus 79.4 cents the previous year. To qualify for program benefits, producers must reduce base acreage by 12.5 percent, compared to 25 percent the season before. No paid diversion had been announced at this writing.

The marketing loan plan "B" will be used in 1988, as it was in 1987. This allows producers to repay loans at the lower of the loan rate or the calculated world price in effect that week.

Futures Market

Cotton futures are traded on the New York Cotton Exchange (NYCE).

Supply and Distribution of All Cotton in the United States In Thousands of (480-Lb. Net Weight) Bales

	Supply												Distribution		
	Carryover, Aug. 1						Ginnings								
	Privately Owned														
Crop Year Beginning Aug. 1	At Mills	In Public Storage	Elsewhere	Total	CCC Held	Total Stocks	Current Crop[2] Less Ginnings	New Crop[3]	Total[4]	Imports	City Crop	Total	Mill Consumption	Exports	Total
1978–9	1,120	3,806	400	4,057	1,232	5,326	10,405	72	10,477	4	0	15,807	6,352	6,180	12,532
1979–0	928	2,604	250	3,145	635	3,782	14,190	200	14,390	5	0	18,177	6,506	9,229	15,735
1980–1	955	1,822	250	2,485	542	3,027	10,627	44	10,671	27	1	13,897	5,891	5,926	11,817
1981–2	883	1,688	25	1,943	652	2,595	15,106	40	15,146	26	0	17,767	5,264	6,567	11,831
1982–3	830	5,269	300	2,640	3,759	6,399	11,486	2	11,488	20	0	17,907	5,512	5,207	10,719
1983–4	792	6,978	167	7,837	4,766	7,561	7,502	163	7,665	12	0	15,235	5,928	6,786	12,714
1984–5	830	1,839	106	2,775	590	2,906	12,382	70	12,452	24	0	15,379	5,540	6,215	11,755
1985–6	768	3,070	264	4,102	1,809	4,088	12,918	145	13,066	33	0	17,181	6,399	1,960	8,359
1986–7[1]	812	8,502	34	9,348	6,829	9,041	9,293	1	9,294	3	0	18,465	7,452	6,684	14,136
1987–8[5]	713	4,000	313	5,026	3,100	4,797	13,400		13,400	10	0	18,217	7,800	7,200	15,000

[1] Preliminary. [2] Less ginnings prior to Aug. 1. [3] Ginnings prior to Aug. 1 end of season. [4] Includes inseason ginnings. [5] Estimate.
Source: Economic Research Service, U.S.D.A.

T.170

Cotton World Supply and Demand In Thousands of 480-lb. Bales

Yr. Begin Aug. 1	Beginning Stocks				Production				Consumption				Exports			
	US	USSR	PR China	World Total	US	USSR	PR China	World Total	US	USSR	PR China	World Total	US	USSR	PR China	World Total
1978–9	5,347	2,465	2,500	26,158	10,856	11,907	9,950	59,639	6,352	9,075	13,100	63,286	6,180	3,756	15	19,790
1979–0	3,958	1,895	1,460	21,735	14,629	12,833	10,100	65,736	6,506	9,100	14,100	66,155	9,229	3,770	12	23,244
1980–1	3,000	2,154	1,548	21,177	11,122	13,498	12,400	64,996	5,891	9,150	15,100	65,969	5,926	4,070	6	19,713
1981–2	2,668	2,585	2,392	20,455	15,646	13,277	13,600	71,195	5,264	9,150	16,200	66,131	6,567	4,295	0	20,239
1982–3	6,632	2,527	1,892	25,181	11,963	11,939	16,500	68,080	5,513	9,200	16,400	68,249	5,207	3,890	75	19,452
1983–4	7,937	1,900	3,017	25,079	7,771	11,050	21,300	66,634	5,928	9,150	16,000	68,721	6,786	3,202	800	19,210
1984–5	2,775	1,381	7,767	24,050	12,982	12,400	28,700	88,688	5,540	9,400	16,000	70,358	6,215	2,994	1,260	20,540
1985–6	4,102	2,206	19,395	42,295	13,432	12,250	19,000	79,081	6,399	9,600	19,500	76,845	1,960	3,170	2,822	20,457
1986–7[1]	9,348	2,279	16,074	45,347	9,731	11,650	16,300	69,676	7,452	9,600	21,000	82,875	6,684	3,100	3,169	25,814
1987–8[2]	5,026	1,829	8,255	31,591	14,724	11,200	18,400	77,373	7,800	9,600	19,500	81,898	7,100	2,800	1,850	24,260

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.168a

World Production of Cotton In Thousands of Bales (480-Lb. Bales)

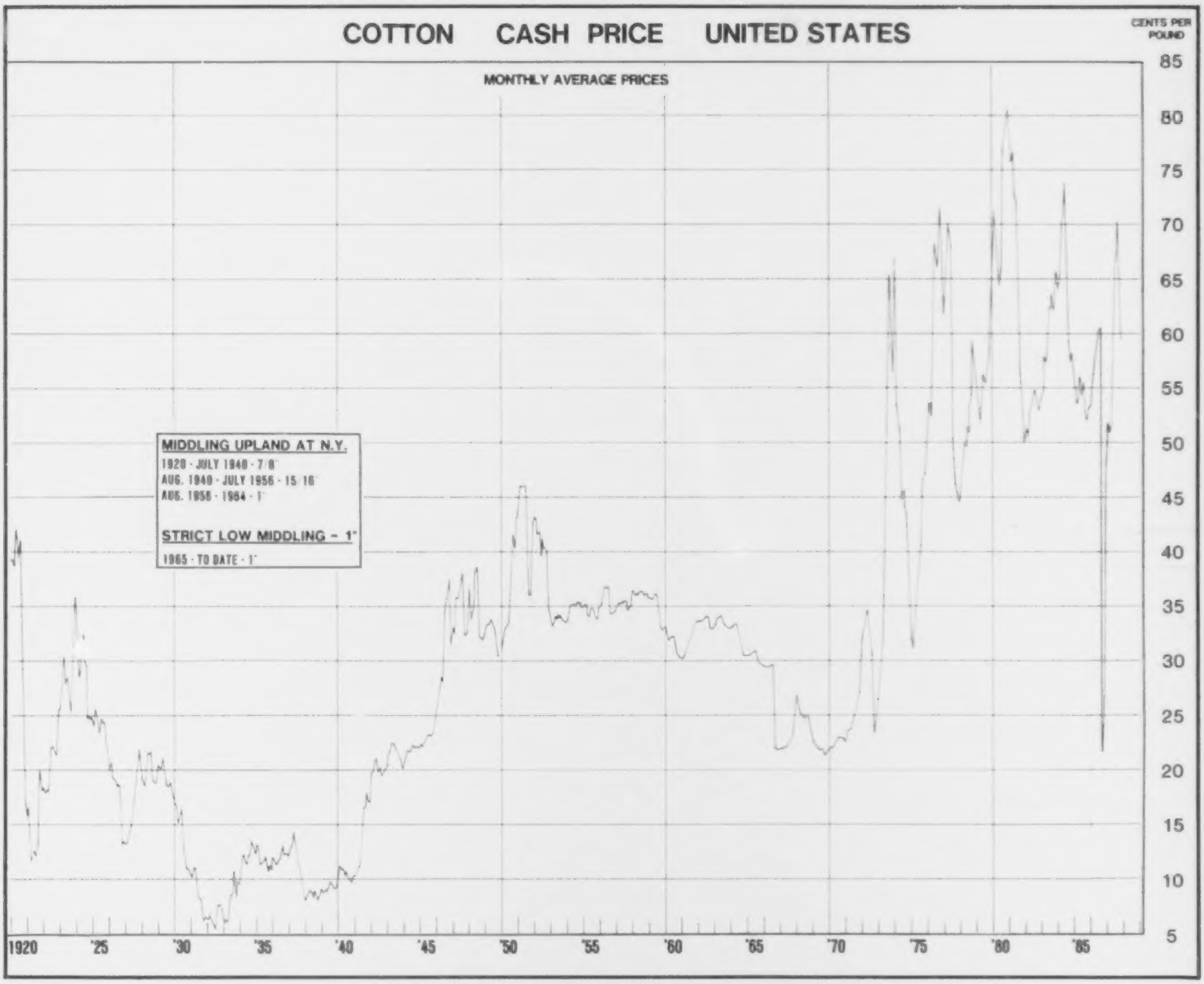
Year Begin. Aug. 1	Argentina	Brazil	PR. China	Egypt	India	Iran	Mexico	Pakistan	Israel	Sudan	Colombia	Turkey	United States	USSR	World Total
1977–8	1,011	2,116	9,411	1,832	5,656	817	1,620	2,640	294	911	642	2,639	14,389	12,468	63,836
1978–9	797	2,519	9,958	2,014	6,194	607	1,563	2,174	363	637	373	2,191	10,856	11,830	59,482
1979–0	667	2,629	10,158	2,221	6,274	458	1,509	3,343	346	523	573	2,191	14,629	12,410	64,938
1980–1	384	2,825	12,433	2,428	6,090	290	1,620	3,282	359	441	531	2,290	11,122	13,165	64,484
1981–2	696	2,939	13,632	2,291	6,473	338	1,440	3,438	420	706	406	2,244	15,641	13,012	70,542
1982–3	511	2,985	16,525	2,115	6,320	427	840	3,775	399	915	153	2,241	11,963	12,193	67,743
1983–4	827	2,554	21,300	1,839	5,878	409	1,038	2,149	425	1,003	352	2,398	7,771	12,282	67,479
1984–5	786	4,423	28,700	1,840	7,926	512	1,240	4,628	400	945	575	2,664	12,982	11,876	88,132
1985–6	547	3,812	19,000	1,999	8,355	478	970	5,669	455	652	531	2,379	13,432	12,250	79,081
1986–7[1]	480	3,008	16,300	1,822	7,418	475	630	6,060	308	693	510	2,159	9,731	11,650	69,676
1987–8[2]	735	3,300	18,400	1,600	7,700	500	1,000	5,800	275	800	650	2,300	14,724	11,200	77,373

[1] Preliminary. [2] Estimate. *Source: International Cotton Advisory Committee; Foreign Agricultural Service, U.S.D.A.* T.169

World Consumption[3] of All Cottons in Specified Countries In Thousands of Bales (480 Pounds Net[2])

Yr. Beg. Aug. 1	Argentina	Brazil	PR. China	Egypt	Poland	France	W. Germany	India	Italy	Japan	Mexico	Pakistan	Un. Kingdom	United States	USSR	World Total
1977–8	478	2,241	12,050	1,295	697	846	807	5,298	837	2,988	737	1,892	413	6,509	8,834	60,825
1978–9	503	2,440	12,747	1,319	727	822	777	5,626	975	3,371	757	1,942	447	6,352	8,812	63,564
1979–0	468	2,589	13,564	1,295	782	846	789	5,925	1,047	3,408	757	1,972	400	6,506	8,840	65,670
1980–1	382	2,600	15,078	1,306	752	767	792	6,313	971	3,286	759	2,061	220	5,891	8,894	65,908
1981–2	359	2,632	16,200	1,148	697	743	795	5,789	994	3,383	708	2,351	207	5,264	8,892	66,131
1982–3	423	2,604	16,400	1,175	699	765	928	6,233	1,000	3,291	630	2,549	208	5,513	8,937	68,249
1983–4	497	2,553	16,000	1,196	638	745	989	6,614	1,125	3,277	528	2,239	206	5,926	9,083	68,721
1984–5	485	2,616	16,000	1,369	712	724	1,000	7,117	1,212	3,181	556	2,217	202	5,540	9,322	70,358
1985–6	563	3,146	19,500	1,283	735	672	980	7,156	1,100	3,098	670	2,447	208	6,399	9,600	76,845
1986–7[1]	563	3,284	21,000	1,300	775	710	1,080	7,847	1,440	3,367	580	2,948	250	7,452	9,600	82,875
1987–8[4]	574	3,200	19,500	1,300	800	750	1,078	7,870	1,350	3,084	625	3,045	265	7,800	9,600	81,898

[1] Preliminary. [2] Except for the U.S. which are in running bales. [3] Includes estimates for hand spinning in some countries. Excludes cotton burned or otherwise destroyed. [4] Estimate. *Source: International Cotton Advisory Committee* T.173



Average Spot Cotton Prices,[2] C.I.F. Northern Europe In Cents Per Pound (Equivalent U.S. ¢/Lb.)

Crop Year (Aug.-July)	M 1"		SM 1 1/16–3/32"											
	U.S. Orleans/ Texas	Pakistan N.T. Sind	Guatemala SM	U.S. Memphis Terr. SM	Greece SM	Egypt Giza 81/80 FG	Mexico SM	Nicaragua SM	Syria SM	USSR Pervyi 31/32 MM	Tanzania A.A. No. 1/2	Turkey Izmir (12 MIR)	SM 1 1/8" U.S. Calif.	Australian M-1 3/32
1978–79	63.23		75.23	72.52	83.09		72.94	70.21	72.08	72.55		73.46	77.99	
1979–80	75.36	75.41	83.63	87.49	84.00	136.37	85.86	86.13	83.50	85.89	92.33	90.25	90.69	
1980–81	89.14	84.94	93.47	101.23	83.80	137.66	94.91	92.46	101.00	92.80	103.25	96.65	101.85	
1981–82	66.76	65.65	72.87	76.30	81.00	115.73	75.28	72.17	79.82	73.02	88.08	77.55	79.79	
1982–83	68.11	65.59	76.14	77.94	85.74	110.07	76.39	75.70	81.10	71.00	87.50	83.44	84.99	
1983–84	78.41	75.20	86.81	87.09	94.37	134.07	87.42	86.02	90.00	91.15	95.14	92.74	94.90	90.83
1984–85	65.92	55.96	66.96	73.47	74.32	136.06	70.00	N.A.	75.15	—	77.18	74.18	75.88	67.62
1985–86	52.55	37.44	51.38	58.50	50.98	111.27	53.02	N.A.	47.00	48.09	55.89	54.21	59.65	50.34
1986–87[1]	56.12	55.24	N.A.	61.90	63.23	112.48	64.60	N.A.	N.A.	62.54	67.22	65.14	74.00	66.81
Aug. '87	82.44	80.81		87.38	91.50	121.76	87.13			86.94	94.33	91.75	71.16	90.06
Sept. '87														
Oct. '87														
Nov. '87														

[1] Preliminary. [2] Generally for prompt shipment. *Source: International Cotton Advisory Committee* T.172

Average Price of Strict Low Middling, $1\frac{1}{16}$", Cotton at Designated U.S. Markets ¢/Lb. (Net Weight)

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
1978–9	59.78	60.04	64.08	65.65	64.39	61.48	60.59	58.70	58.05	60.90	63.38	61.87	61.58
1979–0	62.08	62.15	62.88	63.40	66.20	72.40	80.66	79.24	79.05	78.27	72.41	79.01	71.48
1980–1	85.60	87.51	85.78	87.05	87.23	85.11	83.30	81.52	81.15	78.46	78.12	75.08	82.99
1981–2	66.44	60.81	60.63	57.47	55.11	57.82	57.26	59.73	62.03	62.44	61.10	64.96	60.48
1982–3	60.38	58.98	58.58	58.20	59.65	60.16	61.72	66.05	65.33	66.88	70.74	70.27	63.08
1983–4	72.93	71.68	72.01	73.41	73.04	70.55	71.38	74.89	75.64	79.44	75.00	67.35	55.00
1984–5	63.01	61.17	61.15	60.43	60.45	59.97	58.65	60.18	61.71	60.11	59.76	59.55	60.51
1985–6	57.87	56.38	56.14	56.03	56.25	58.39	59.81	61.75	62.62	63.95	65.24	65.73	60.01
1986–7	26.81	33.56	43.95	45.74	54.18	57.17	54.75	54.60	57.72	65.94	70.42	73.07	53.16
1987–8	75.89	71.41	64.30										

Note: Grade 41. *Source: Department of Agriculture* T.190

Average Spot Cotton, $1\frac{3}{32}$", Price (SLM) at Designated U.S. Markets In Cents Per Pound (Net Weight)

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average	$1\frac{1}{32}$"	1"
1978–9	60.01	60.27	64.31	65.94	64.68	61.77	60.88	59.03	58.44	61.30	63.79	62.26	61.89	59.92	55.24
1979–0	62.47	62.54	63.28	63.81	66.58	72.78	81.05	79.63	79.44	78.66	72.80	79.40	71.87	69.53	63.39
1980–1	86.00	87.91	86.18	87.45	87.63	85.57	83.70	81.92	81.55	78.86	78.52	75.48	83.39	80.95	75.70
1981–2	66.84	61.22	61.08	57.91	55.52	58.24	57.70	60.12	62.41	62.82	61.48	N.A.	60.89	58.28	54.13
1982–3	60.76	59.36	58.97	58.57	60.02	60.53	62.09	66.43	65.72	67.31	71.20	70.73	63.47	61.17	56.41
1983–4	70.52	69.29	69.49	70.82	70.44	68.03	68.98	72.56	73.37	77.18	72.74	65.11	73.55	70.71	66.32
1984–5	63.45	61.60	60.71	59.99	60.01	59.52	58.21	59.74	61.27	59.67	59.32	59.99	60.29	58.30	55.98
1985–6	57.40	55.89	55.66	55.55	55.77	57.92	59.34	61.28	62.15	63.48	64.77	66.20	59.62	57.87	55.81
1986–7	27.39	35.56	44.53	46.27	54.71	57.70	55.26	55.12	58.24	66.46	70.94	73.59	53.81	50.78	47.77
1987–8	76.42	71.99	64.84												

Source: Agricultural Marketing Service, U.S.D.A. T.191

Average Spot Prices of U.S. Cotton,[1] $1\frac{1}{16}$ inches—(SLM) at Designated Markets In Cents Per Pound

Yr. Begin. Aug. 1	Atlanta	Augusta	Charleston	Dallas	Fresno	Galveston	Greenville	Greenwood	Houston	Little Rock	Lubbock	Memphis	Montgomery	Phoenix	Average
1978–9	—	62.50	—	58.33	67.66	—	62.09	61.84	59.45	—	58.27	61.68	61.92	61.98	61.58
1979–0	—	73.92	—	66.91	73.76	—	73.24	72.73	—	—	66.43	72.55	72.57	71.98	71.48
1980–1	—	85.21	—	80.65	82.80	—	84.54	84.30	—	—	79.66	83.81	84.28	81.70	82.99
1981–2	—	61.87	—	58.32	61.02	—	61.57	61.34	—	—	57.96	61.00	61.34	59.93	60.48
1982–3	—	—	—	61.62	64.49	—	63.50	63.35	—	—	60.84	63.33	63.50	63.17	63.08
1983–4	—	—	—	70.79	77.02	—	73.28	73.14	—	—	70.35	73.25	72.93	74.13	73.11
1984–5	—	—	—	58.94	61.29	—	61.08	60.98	—	—	58.93	60.73	60.56	61.57	60.51
1985–6	—	—	—	58.96	60.35	—	60.52	60.69	—	—	59.17	60.40	60.17	59.84	60.01
1986–7	—	—	—	51.03	60.97	—	51.66	51.99	—	—	51.20	51.70	51.34	55.38	53.16

[1] Mixed Lots, Net Weight, uncompressed in warehouse. *Source: Agricultural Marketing Service, U.S.D.A.* T.177

Avg. Price[1] Received by Farmers for Upland Cotton in the U.S. In Cents Per Pound

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average[1]
1978–9	57.4	56.2	59.6	61.1	59.0	57.0	55.6	53.5	54.7	56.0	58.8	61.9	58.1
1979–0	59.2	57.3	61.2	61.0	59.8	60.9	64.9	62.9	61.0	63.6	62.2	71.5	62.3
1980–1	73.7	73.9	75.3	77.6	80.9	76.6	70.8	71.9	72.7	72.5	71.2	70.4	74.4
1981–2	65.0	58.1	63.2	61.1	51.5	50.3	49.1	50.4	54.3	55.8	58.1	59.9	54.0
1982–3	52.7	56.0	60.9	61.0	57.7	57.0	57.7	62.2	60.4	63.6	62.6	67.1	59.1
1983–4	64.6	62.8	63.1	67.0	66.2	62.7	65.0	70.1	67.2	72.7	68.0	65.9	66.0
1984–5	67.3	65.6	64.4	62.0	56.1	52.2	49.5	56.1	57.0	57.5	60.3	60.5	57.8
1985–6	56.6	55.9	57.3	56.5	53.7	54.0	56.9	58.1	59.2	58.5	58.5	61.5	56.8
1986–7[2]	46.8	48.6	50.0	52.6	52.7	52.1	46.4	47.5	50.4	60.0	66.2	68.3	51.5
1987–8[2]	65.3	64.9	64.1	64.9	64.4								

[1] Weighted average by sales. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.187

COTTON

High, Low & Closing Prices of May Cotton Futures at New York In Cents per Pound

Year of Delivery	Year Prior to Delivery										Delivery Year					Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1980 High	67.90	65.70	66.40	68.25	67.00	70.00	69.00	68.90	73.00	76.40	86.00	90.42	90.70	87.40	84.40	90.70
Low	66.00	64.10	63.00	63.90	64.55	65.90	66.25	66.40	68.20	70.82	73.97	80.70	77.52	79.50	80.90	64.15
Close	65.65	65.45	64.15	65.60	66.05	69.20	67.70	68.22	71.77	75.95	85.37	86.77	85.12	81.99	83.75	—
1981 High	80.60	77.60	78.42	75.00	85.70	94.50	96.87	93.50	93.12	97.67	96.50	93.70	89.80	89.20	85.20	97.67
Low	74.50	74.30	74.92	72.80	75.50	81.65	87.00	88.20	86.70	88.40	88.35	86.00	84.75	83.75	80.65	71.00
Close	77.00	75.05	75.00	74.80	84.80	93.92	90.40	90.20	92.08	95.60	90.90	90.14	86.12	84.00	80.45	—
1982 High	84.90	85.35	83.66	82.50	81.27	79.40	73.80	71.90	70.45	67.40	67.95	67.65	66.75	68.95	68.50	87.50
Low	82.75	83.20	81.80	78.70	79.10	71.45	68.55	68.30	64.40	63.11	65.55	64.65	64.01	65.40	67.50	63.11
Close	84.20	83.26	82.90	79.00	79.30	69.15	69.15	69.45	65.29	65.70	67.82	64.94	65.92	68.30	68.43	—
1983 High	74.65	76.75	76.50	77.50	77.50	74.90	72.15	69.25	68.15	68.90	68.40	71.25	76.42	75.30	71.60	77.50
Low	73.50	74.20	73.74	69.45	74.50	69.50	66.75	65.80	65.81	66.20	66.35	66.26	70.30	70.25	69.77	65.80
Close	74.53	76.40	73.30	76.60	74.66	69.90	67.25	67.42	66.62	67.41	67.33	71.20	75.32	71.08	71.03	—
1984 High	74.60	75.50	80.00	83.40	82.70	83.80	83.40	82.15	83.80	82.05	78.25	78.79	81.85	82.54	84.40	84.40
Low	70.60	73.25	73.20	79.25	78.20	80.30	78.15	78.70	80.31	78.35	74.75	74.05	77.70	77.90	81.50	66.75
Close	73.80	73.80	80.00	80.00	81.00	82.80	79.30	81.65	80.98	78.42	77.13	78.09	81.74	82.39	82.39	—
1985 High	81.85	78.00	79.25	79.15	75.25	71.80	69.00	72.05	71.30	67.66	68.20	66.85	68.25	70.45	68.98	79.25
Low	77.70	75.80	77.45	75.00	69.60	68.74	67.60	67.36	66.45	66.20	65.70	63.28	63.26	64.75	66.10	63.26
Close	81.74	78.00	78.60	75.00	69.75	69.15	68.00	69.85	66.95	66.95	65.76	64.18	67.60	66.40	66.33	—
1986 High	67.55	67.88	66.65	64.25	62.90	61.10	60.90	62.39	63.45	62.10	63.60	64.48	65.85	67.25	68.05	70.55
Low	66.35	66.52	61.86	62.00	59.95	59.30	59.25	60.45	60.50	59.60	58.80	59.50	61.90	60.70	66.00	58.80
Close	67.55	66.52	63.13	63.00	60.25	60.05	60.48	67.34	60.75	62.06	60.32	63.45	65.69	66.80	67.20	—
1987 High	46.70	41.85	40.55	37.30	35.25	38.40	48.90	50.90	52.96	59.50	60.15	57.00	58.70	64.85	66.10	66.10
Low	40.50	38.30	36.70	33.60	31.56	32.40	35.44	45.51	46.35	52.60	53.30	52.10	54.00	55.55	62.85	31.56
Close	41.00	40.70	36.73	33.93	34.40	38.40	47.50	47.00	52.96	59.25	54.30	54.60	57.05	64.45	65.61	—
1988 High	56.80	65.23	74.60	74.25	78.35	81.70	78.85	74.60	73.00	71.20						
Low	52.62	55.90	64.00	68.50	71.75	76.20	72.65	65.00	67.81	63.90						
Close	56.22	65.23	71.30	72.50	78.05	78.50	74.05	68.75	70.05	67.65						

Source: N.Y. Cotton Exchange

T.184

Month–End Open Interest of Cotton Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	54,046	57,891	44,363	38,596	31,753	27,276	39,711	46,814	49,370	45,433	40,208	38,022
1981	32,078	34,782	25,882	24,108	26,793	27,286	26,009	30,014	32,121	31,671	29,157	28,584
1982	30,296	31,740	30,230	31,422	27,665	24,675	24,978	25,052	27,047	26,070	26,949	26,581
1983	29,544	34,165	36,109	33,990	35,026	33,851	31,402	33,981	31,531	29,272	30,868	30,758
1984	32,246	28,060	34,212	29,596	30,569	22,239	21,734	21,576	20,419	22,547	19,211	16,614
1985	19,790	17,660	18,678	14,101	16,481	15,381	19,386	20,861	21,011	22,889	23,196	21,748
1986	23,326	20,824	20,112	20,121	23,702	22,505	25,321	27,642	23,406	24,432	20,534	23,035
1987	26,077	23,482	23,190	25,753	27,990	28,140	35,719	39,148	39,840	39,750	34,600	33,204

Source: N.Y. Cotton Exchange

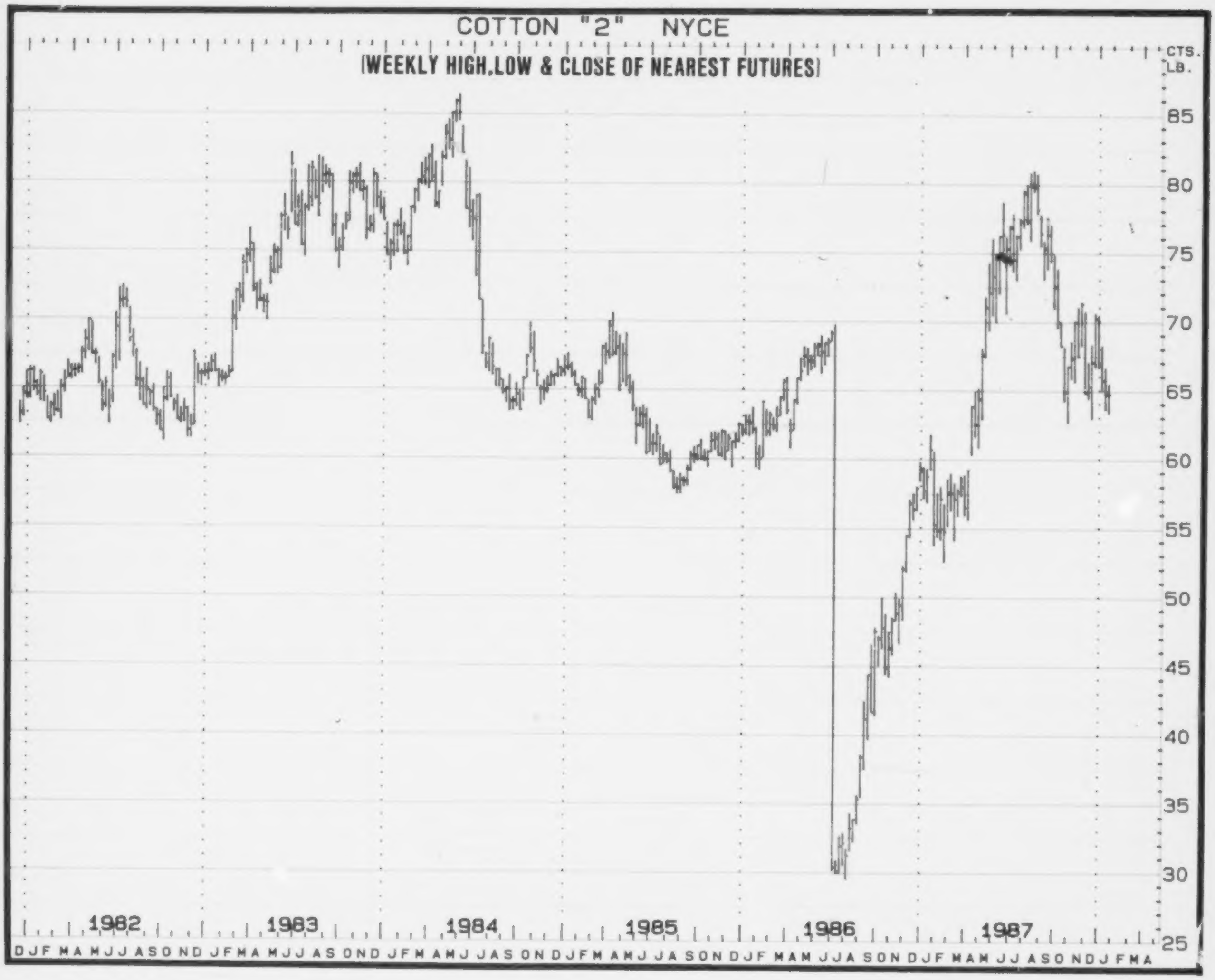
T.182

Volume of Trading of Cotton Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	286,058	278,901	290,133	206,682	191,067	128,393	175,619	188,542	224,323	186,615	173,081	173,133	2,523,447
1981	156,303	166,292	150,297	117,653	90,157	117,249	99,175	95,312	96,956	120,301	115,833	89,985	1,415,213
1982	100,242	104,444	103,697	106,892	95,597	151,068	116,211	99,674	101,119	94,265	98,597	83,988	1,255,202
1983	97,947	123,620	139,032	132,447	139,953	153,932	143,116	156,680	121,972	113,759	137,472	90,187	1,550,117
1984	124,735	133,891	127,448	126,780	139,988	111,050	71,522	51,941	39,519	83,631	86,729	39,907	1,137,141
1985	61,860	57,034	61,921	65,709	47,606	47,604	41,069	40,524	42,747	55,046	63,829	51,543	636,492
1986	73,576	77,152	57,433	74,520	57,479	64,742	75,545	94,025	130,989	111,359	113,812	84,618	1,015,392
1987	110,165	106,520	88,621	106,620	110,303	132,180	98,339	127,048	131,214	124,319	126,582	107,124	1,395,980

Source: N.Y. Cotton Exchange

T.183



United States Government Crop Forecasts and Actual Cotton Crops

Year	Forecasts of Production (1,000 Bales of 480 Lbs.[1])					Actual Crop	Forecasts of Yields (In Lbs. Per Harv. Acre)					Actual Yield
	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1		Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	
1976	10,734	10,375	10,251	9,891	10,264	10,581	466	451	445	435	451	465
1977	13,535	13,302	13,317	13,832	14,496	14,389	506	495	500	503	525	520
1978	11,820	11,155	10,873	10,981	10,841	10,856	462	425	429	418	421	420
1979	13,710	14,245	14,356	14,544	14,527	14,629	497	525	528	535	534	547
1980	12,812	11,689	11,589	11,224	11,125	11,122	461	421	419	408	411	404
1981	14,789	15,507	15,476	15,560	15,733	15,646	515	540	540	543	546	543
1982	11,143	11,029	11,365	11,947	12,102	11,963	563	569	587	605	613	590
1983	7,810	7,776	7,550	7,497	7,725	7,771	503	501	487	504	506	508
1984	12,569	13,276	13,272	13,271	13,292	12,982	583	615	620	613	610	600
1985	13,780	13,655	13,638	13,875	13,810	13,432	638	632	633	644	644	630
1986	10,676	10,506	10,006	9,875	9,792	9,731	573	565	539	546	539	552
1987	12,907	12,846	13,336	13,936	14,281		615	616	640	671	695	

[1] Net Weight bales. *Source: Crop Reporting Board, U.S.D.A.*

T.175

United States Production of Cotton (Upland) & American-Pima

In Thousands of 480-Pound Net Weight Bales

	Upland														
Year	Alabama	Arizona	Arkansas	California	Georgia	Louisiana	Mississippi	Missouri	No. Car.	Oklahoma	So. Car.	Tennessee	Texas	New Mexico	Total Amer. Pima
1978	291	1,068	660	1,940	111	478	1,378	188	45	355	115	235	3,792	101	93.4
1979	324	1,280	606	3,408	152	690	1,437	157	43	522	116	171	5,515	104	98.6
1980	275	1,354	444	3,109	86	460	1,143	177	52	205	77	200	3,320	107	104.2
1981	422	1,556	604	3,535	159	742	1,565	168	95	440	164	315	5,663	141	79.6
1982	460	1,095	534	3,073	235	870	1,760	204	102	238	155	339	2,700	78	98.7
1983	183	725	323	1,971	112	532	900	73	43	145	53	151	2,380	70	94.7
1984	447	1,097	612	2,913	281	1,056	1,650	187	120	183	170	337	3,680	87	130.4
1985	545	928	703	3,114	370	742	1,655	204	117	285	180	419	3,910	71	155.1
1986	330	675	602	2,245	185	673	1,190	196	109	210	87	396	2,535	62	205.9
1987[1]	410	840	900	2,800	340	990	1,750	325	100	350	110	650	4,350	85	242.5

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.176

Gross Entries of Cotton into U.S. Government Loan Program In Thousands of Running Bales

Crop Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May[1]	June[1]	July[1]	Seasonal Total
1978–9	0	5	26	89	215	584	352	189	68	16	14	[2]	1,560
1979–0	0	[2]	23	294	319	600	316	110	51	35	8	[2]	1,759
1980–1	0	[2]	8	253	528	912	343	204	36	28	16	[2]	2,328
1981–2	0	9	132	293	1,081	2,796	1,120	473	117	39	21	2	6,083
1982–3	0	46	143	674	1,857	1,590	4,503	4,160	43	23	13	3	5,062
1983–4	0	0	165	227	253	313	188	264	127	9	32	5	1,765
1984–5	0	1	11	98	563	776	1,057	324	62	44	32	5	2,977
1985–6	31	202	771	1,497	1,406	2,375	781	159	61	12	40	60	7,365
1986–7	22	136	775	1,146	1,124	1,664	662	504	97	40	30	6	6,204
1987–8	—	25	345	839	745								

NOTE: Seasonal totals are net, due to allowances for rejections. [1] Entries after April 30 represent late reporting. [2] Less than one thousand bales. *Sources: N.Y. Cotton Exchange; Commodity Credit Corporation* T.178

U.S. Daily Rate of Upland Cotton Mill Consumption[2] on Cotton-System Spinning Spindles

In Thousands of 480 Lb. Running Bales[3]

Crop Yr.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
1978–9	22,941	22,780	24,090	23,809	21,735	24,114	23,567	25,306	23,358	24,193	24,454	20,127	23,373
1979–0	23,617	24,177	25,188	24,099	21,813	24,160	25,353	25,654	24,899	24,781	23,883	18,473	23,836
1980–1	22,130	22,816	23,884	22,885	19,000	21,773	22,312	21,544	21,741	22,060	21,260	19,250	26,066
1981–2	21,448	20,679	22,420	20,138	15,985	18,898	19,885	19,720	20,476	19,580	18,382	15,980	19,466
1982–3[3]	19.3	19.0	20.8	19.5	17.0	20.2	21.5	22.0	21.5	22.0	21.7	18.4	20.2
1983–4	22.6	22.4	22.9	22.3	18.7	23.5	22.4	21.9	21.5	22.1	20.1	17.7	21.6
1984–5	21.4	20.4	21.4	19.5	16.9	20.0	20.9	20.8	21.0	21.9	21.0	18.5	20.3
1985–6	22.9	22.5	24.6	23.9	19.5	23.8	24.9	24.6	24.8	25.2	24.4	20.9	23.4
1986–7[1]	26.7	26.2	27.3	26.5	23.1	27.3	28.1	29.4	28.7	29.3	28.3	27.0	27.3
1987–8[1]	30.3	30.1	31.2										

[1] Preliminary. [2] Not seasonally adjusted. [3] Data prior to 1983 are in running bales. *Source: Bureau of the Census; U.S.D.C.* T.180

Consumption of American and Foreign Cotton in the United States In Thousands of Bales[1]

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1978–9	459	569	482	595	435	603	471	506	584	484	489	503	6,180
1979–0	472	482	630	482	436	604	507	513	622	496	478	487	6,209
1980–1	443	456	597	458	475	435	446	539	435	441	531	385	5,641
1981–2	429	517	448	403	400	378	398	493	410	392	460	317	5,038
1982–3	386	474	416	391	425	404	430	549	431	441	543	369	5,259
1983–4	453	560	459	446	468	469	448	548	430	442	503	354	5,628
1984–5	428	509	428	390	423	399	418	519	419	439	525	369	5,268
1985–6	458	562	493	477	486	595	499	492	620	503	489	522	6,198
1986–7[2]	534	523	683	529	576	546	562	734	573	586	708	540	7,096
1987–8[2]	606	753	624										

[1] American cotton, running bales; foreign cotton, equivalent 500 lb. bales. [2] Preliminary. *Source: Bureau of the Census* T.188

Exports of American Cotton from the United States In Thousands of Running Bales

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1976–7	274	342	217	265	376	354	509	536	548	400	462	282	4,564
1977–8	181	200	149	333	496	521	502	704	640	510	528	456	5,218
1978–9	524	388	283	355	464	517	577	574	602	542	614	410	5,849
1979–0	463	428	390	630	902	737	1,025	1,150	916	911	686	540	8,778
1980–1	402	393	237	436	541	669	2,352	733	498	458	320	264	7,303
1981–2	990	261	262	478	737	653	754	873	676	484	498	396	7,062
1982–3	342	351	293	382	377	438	368	487	612	464	831	409	5,354
1983–4	383	322	261	441	632	663	719	896	723	607	422	365	6,434
1984–5[1]	452	264	292	484	629	766	766	625	544	426	353	252	5,853
1985–6[1]	193	187	207	223	187	396	180	176	163	76	55	21	2,064
1986–7[1]	261	346	314	529	3,149	429	499	595	529	512	422	400	7,985
1987–8[1]	395	295											

[1] Preliminary. *Source: Foreign Agricultural Service, U.S.D.A.* T.185

U.S. Exports of American Cotton to Countries of Destination In Thousands of 480-Pound Bales

Yr. Beg. Aug. 1	Bangladesh	Canada	Hong Kong	France	W. Germany	Egypt	Italy	Japan	Netherlands	Spain	Sweden	United Kingdom	Rep. of Korea	P.R. China	Taiwan	USSR	World Total
1976–7	122	187	358	45	36		85	973	12	86	17	66	913	0	436		4,565
1977–8	46	214	479	80	65		77	1,028	21	64	21	59	1,172	443	490		5,219
1978–9	116	222	427	63	96		146	1,342	18	65	23	72	1,278	648	454		6,180
1979–0	71	272	636	92	204		185	1,588	11	131	21	72	1,484	2,268	728		9,229
1980–1	33	267	205	42	112		54	1,139	1	60	10	38	1,303	1,375	351		5,926
1981–2	50	167	243	58	119		106	1,626	2	57	17	43	1,412	848	777	0	6,567
1982–3	88	238	158	45	163		105	1,286	7	72	23	50	1,322	20	378	192	5,207
1983–4	135	227	283	154	195	0	252	1,709	6	114	28	67	1,269	12	495	351	6,785
1984–5	60	195	125	132	195	126	301	1,464	4	118	22	72	1,257	6	513	329	6,211
1985–6	14	98	1	8	85	120	91	520	1	29	15	35	513	0	46	0	1,958
1986–7[1]	64	60	45	91	284	69	242	1,429	6	61	15	57	1,232	5	749	—	5,923

[1] Preliminary. *Source: Bureau of the Census* T.189

COTTON

U.S. Imports of Cotton Cloth (Raw Cotton Equivalent) In Thousands of Bales (Net Weight—480 Lbs.)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985[1]	60.5	85.4	86.0	75.7	91.4	78.5	77.9	69.4	87.9	95.5	98.9	100.2	1,024.9
1986[1]	116.4	109.1	128.9	116.6	106.5	104.9	127.1	109.6	100.2	98.8	96.3	107.9	1,322.2
1987[1]	119.9	142.1	136.4	119.6	119.3	140.4	143.3	140.4	130.1				

[1] Preliminary. *Source: Bureau of the Census*

U.S. Exports of Cotton Cloth (Raw Cotton Equivalent) In Thousands of Bales (Net Weight—480 Lbs.)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	50.6	54.2	52.4	45.2	42.4	47.2	34.6	44.3	48.0	42.0	38.4	40.9	540.2
1981	34.8	28.2	35.8	35.7	30.9	30.8	21.7	25.9	25.8	27.5	26.6	21.9	345.6
1982	18.2	18.6	20.4	20.6	24.3	24.8	22.7	15.7	18.4	20.7	18.4	16.4	239.2
1983	20.1	15.1	18.2	17.2	14.2	15.9	12.7	14.0	15.4	16.0	15.3	14.8	188.8
1984	14.2	12.3	13.6	13.4	14.2	16.9	13.5	12.8	15.7	16.7	14.1	13.5	170.9
1985[1]	18.7	15.2	19.8	21.2	17.3	18.6	65.7	21.6	24.7	17.4	15.6	14.7	220.5
1986[1]	17.5	20.1	23.6	23.5	27.4	23.6	17.3	30.1	26.2	26.1	28.2	30.0	293.6
1987[1]	20.2	27.5	25.4	21.7	20.3	22.1	19.0	23.0					

[1] Preliminary. *Source: Bureau of the Census* T.193

United States Cotton Ginnings

Crop Year	Ginnings to: (In Thousands of Running Bales) Aug. 1	Aug. 16	Sept. 1	Sept. 16	Oct. 1	Oct. 15	Nov. 1	Nov. 15	Dec. 1	Dec. 15	Jan. 1	Jan. 15	Feb. 1	Total Crop
1981–2	44	N.A.	427	645	1,725	3,299	5,541	7,688	10,156	12,023	13,460	14,276	14,778	15,150
1982–3	40	N.A.	453	578	1,529	2,660	5,288	7,202	8,823	9,627	10,574	10,974	11,300	11,526
1983–4	2	N.A.	315	397	763	1,748	3,348	4,638	6,003	6,880	7,209	7,389	7,476	7,504
1984–5	163	N.A.	634	780	1,175	2,277	4,321	7,025	8,972	10,478	11,079	11,682	12,319	12,545
1985–6	70	N.A.	681	1,073	2,431	4,342	6,246	8,216	10,052	11,372	12,365	12,776	12,948	12,988
1986–7	145	N.A.	624	1,022	2,407	3,618	5,292	6,369	7,491	8,263	8,588	9,095	9,273	9,438
1987–8[1]	1	N.A.	429	1,242	3,197	5,361	7,534	9,145	11,082	12,588	13,276			

[1] Preliminary. *Source: Bureau of Census* T.171

Cotton Government Loan Program in the United States

Crop Yr. Beginning Aug.	Acreage: Prospective Planting Intentions	Acreage: Harvested	Loan Rate: Avg. at Spot[2] Mkts.	Loan Rate: Target Price	Supply & Distribution of Gov't Controlled Cotton: Stocks—Aug. 1: Gov't. Owned	Stocks—Aug. 1: Loan	Stocks—Aug. 1: Total Stock	Loan Entries	Total Supply	Loan Cotton Repossessed	Total Distribution
	Thousand Acres		¢ Per Lb.		In Thousands of Running Bales						
1983–4	9,281	7,348	55.00	76.00	334	4,432	4,766	1,782	6,416	5,958	5,958
1984–5	10,759	10,380	55.00	81.00	121	469	590	2,974	3,564	1,755	1,755
1985–6	10,957	10,229	57.30	81.00	152	1,657	1,809	7,396	9,205	2,376	2,376
1986–7[1]	9,711	8,468	55.00	81.00	766	6,063	6,829	6,204	13,033	9,933	9,933
1987–8[3]	10,354	9,965	52.25	79.40	189	2,911	3,100	3,500	6,600	3,000	3,000

[1] Preliminary. [2] Strict low middling, $1\frac{1}{16}$" at 10 markets. [3] Estimate. *Source: Department of Agriculture* T.174

Purchases Reported by Exchanges in Designated U.S. Spot Markets In Running Bales

Year Beginning August 1	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1983	236,607	270,662	688,534	1,022,458	1,639,279	1,697,601	750,963	424,475	162,863	171,484	59,012	126,720	7,250,658
1984	258,511	154,557	271,195	558,999	1,153,086	1,015,087	570,259	287,483	303,501	159.540	123,089	131,035	4,986,342
1985	166,725	152,795	258,891	395,097	570,460	671,758	389,436	416,654	487,813	626,319	968,185	690,947	5,795,080
1986	585,628	638,356	392,451	422,542	1,353,241	1,055,081	633,852	354,643	501,265	354,008	163,307	160,474	6,614,848
1987	152,935	252,669	650,349	718,829	1,065,457								

[1] Purchases are for 10 markets; commencing February 1980 purchases are for nine markets; and commencing March 28, 1983 purchases are for eight markets. *Source: Agricultural Marketing Service: U.S.D.A.* T.190a

Average Wholesale Price of Cotton Yarn[1] (30/1, Combed, Knitting) on Cones Index 1967 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	244.0	243.6	242.8	242.2	242.7	240.3	240.4	240.1	239.0	237.4	237.1	236.4	240.0
1983	234.8	234.1	234.2	236.1	236.1	236.7	237.5	239.7	241.5	242.6	243.6	244.3	238.4
1984	244.9	246.2	246.7	248.2	248.1	247.8	248.0	244.9	242.9	242.0	240.9	239.7	245.0
1985	239.5	237.3	237.1	235.5	235.7	235.3	235.1	232.3	231.7	231.8	231.7	231.6	234.6
1986	228.0	228.4	228.6	229.7	230.1	230.0	230.0	228.1	226.9	226.2	227.2	229.4	228.6
1987[2]	225.0	223.8	225.2	227.0	229.5	234.7	238.6	244.6	244.6	245.1			

[1] Natural stock, f.o.b. mill. [2] Preliminary. *Source: Bureau of Labor Statistics* (0326-01) T.181

Cotton Cloth[1] Production in the United States In Millions of Linear Yards

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year	Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year
1981	966	961	942	987	3,856	1985[2]	1,014	982	933	955	3,921
1982	979	961	868	987	3,794	1986[2]	1,045	944	936	963	4,364
1983	1,068	1,052	1,032	1,040	4,192	1987[2]	1,163	1,217			
1984	1,069	1,031	947	955	4,002	1988					

[1] Cotton broadwoven goods over 12 inches in width. [2] Preliminary. *Source: Bureau of the Census* T.192

U.S. American Upland Cotton—Ginnings, by Staple Length In Thousands Running of Bales

Year beginning August	(13/16") 26 & under	(7/8") 28	(29/32") 29	(15/16") 30	(31/32") 31	(1") 32	(1 1/32") 33	(1 1/16") 34	(1 3/32") 35	(1 1/8") 36	37 & Over	All staple lengths
1981	2	25	155	805	1,924	1,700	1,124	2,725	4,419		2,194	15,073
1982	2	16	78	412	935	676	454	985	3,509		4,362	11,430
1983	3	22	65	251	482	471	513	1,012	2,531		2,063	7,413
1984	7	45	122	414	761	719	715	1,149	2,858		5,630	12,419
1985	—	5	38	234	825	889	883	1,679	4,182	2,380	1,721	12,837
1986[1]	—	2	13	58	226	491	1,058	1,859	3,184	2,159	186	9,237

[1] Preliminary. *Source: Agricultural Marketing Service, U.S.D.A.* T.179

Raw Cotton Equivalent of U.S. Textile Imports In Thousands of Pounds

	Yarn, Thread, and Woven Fabric				Primarily Manufactured Products									
		Woven Fabric												
Year and month	Yarn	100 percent cotton	Blends	Total All	Pile fabrics and mfrs.	Bed clothes and towels	Gloves hosiery, and hdkf.	Other wearing apparel	Lace fabric and articles	House-hold and clothing articles	Misc. products	Floor cover-ing	Total All	Grand total imports
1983	40,881	274,467	64,108	380,706	7,721	70,067	25,383	597,423	5,957	11,855	28,426	7,526	754,796	1,135,502
1984	52,897	360,791	90,126	505,533	12,572	106,468	26,609	733,111	9,651	18,652	37,741	14,649	959,942	1,465,575
1985	53,818	341,896	93,569	491,874	17,916	127,494	30,052	865,476	10,372	19,681	46,197	17,984	1,137,294	1,629,166
1986	103,249	431,289	97,468	634,678	19,576	133,637	27,054	988,906	6,787	30,095	46,410	18,389	1,275,799	1,910,477
1987														

Source: Bureau of the Census

Raw Cotton Equivalent of U.S. Textile Exports In Thousands of Pounds

	Semi-Manufactured					Manufactured Products								
								Wearing Apparel						
Year and month	Yarn	Sewing thread crochet, darning and em-broidery cotton	Fabric standard construc-tions	Other fabric	Total all	Blankets, spreads, pillow cases, and sheets	Towels	Knit	Other than knit	Other house-hold and clothing articles	Floor cover-ing	Indus-trial products	Total all	Grand total exports
1983	18,854	11,577	51,667	7,747	90,636	8,725	5,705	27,957	44,113	13,736	13,986	11,601	128,977	219,614
1984	11,186	8,369	55,848	5,997	82,047	9,008	4,470	25,904	42,360	13,894	9,813	15,014	124,032	206,081
1985	16,843	8,466	74,919	5,134	105,892	9,802	3,582	25,326	30,158	11,037	8,155	16,541	107,332	213,224
1986	9,892	6,049	118,154	6,202	140,925	8,192	4,515	27,413	46,437	13,860	9,793	20,992	133,904	274,828
1987														

Source: Bureau of the Census

Cottonseed and Products

Cottonseed production is directly affected by the amount of cotton ginned. World cottonseed output for 1987/88 was estimated by USDA at 29.64 million tonnes, up from 26.98 million in 1986/87, or a rise of 10 percent. The largest producer is China. Its output was put at 6.66 million tonnes, versus 6.02 million in 1986/87. The U.S. was second largest in 1987/88, moving up from third and nosing out the USSR. U.S. production was pegged at 4.97 million tonnes, compared with 3.45 million in 1986/87. The USSR's output was put at 4.37 million tonnes, down from 4.68 million in 1986/87. Farmers expanded cotton plantings in most Northern Hemisphere producing countries and in Australia and Argentina. Significantly higher prices for cotton accounted for this.

World cottonseed trade is negligible, accounting for about 1 percent of total output. The few countries importing sizable quantities are Japan (projected at 140,000 tonnes in 1987/88), Mexico (60,000 tonnes), and Greece (30,000 tonnes).

Cottonseed oil production was put at 3.40 million tonnes, up approximately 285,000 tonnes from 1986/87. Cotton oil inventories were depleted to 230,000 tonnes in October 1987, from 340,000 tonnes a year earlier. Most of the drop was in the U.S., China, Venezuela and Egypt.

Egypt is the world's largest cottonseed oil importer; expected purchases of 115,000 tonnes in 1987/88 were below 1985/86's, but up slightly from 106,000 in 1986/87. The U.S. is the world's largest exporter. However, exports as a percent of domestic production were expected to decline to 38 percent from recent levels of about 55 percent.

World Production of Cottonseed In Thousands of Metric Tons

Crop Year	Sudan	Argentina	Brazil	China	Egypt	India	Mexico	Pakistan	Peru	Turkey	South Africa	USSR	United States	World Total
1980–1	192	315	1,133	4,602	844	2,749	590	1,429	151	800	116	5,082	4,056	24,807
1981–2	306	170	1,164	5,046	805	2,961	525	1,497	130	781	72	5,279	5,803	27,494
1982–3	421	290	1,198	6,117	769	3,047	313	1,648	60	782	53	5,094	4,304	26,665
1983–4	438	326	995	7,883	680	2,647	377	1,021	100	835	68	4,815	2,791	25,680
1984–5	435	300	1,758	10,639	664	3,447	459	2,014	145	928	89	4,740	4,671	34,090
1985–6		278	1,405	7,050	682	3,652	345	2,468	145	810	109	5,000	4,789	30,470
1986–7[1]			1,110	6,020	673	3,221		2,640		747		4,670	3,448	26,940
1987–8[2]			1,260	6,660	685	3,350		2,520		780		4,360	5,100	29,520

[1] Preliminary. [2] Estimated. *Source: Foreign Agricultural Service, U.S.D.A.* T.194

Salient Statistics of Cottonseed in the United States

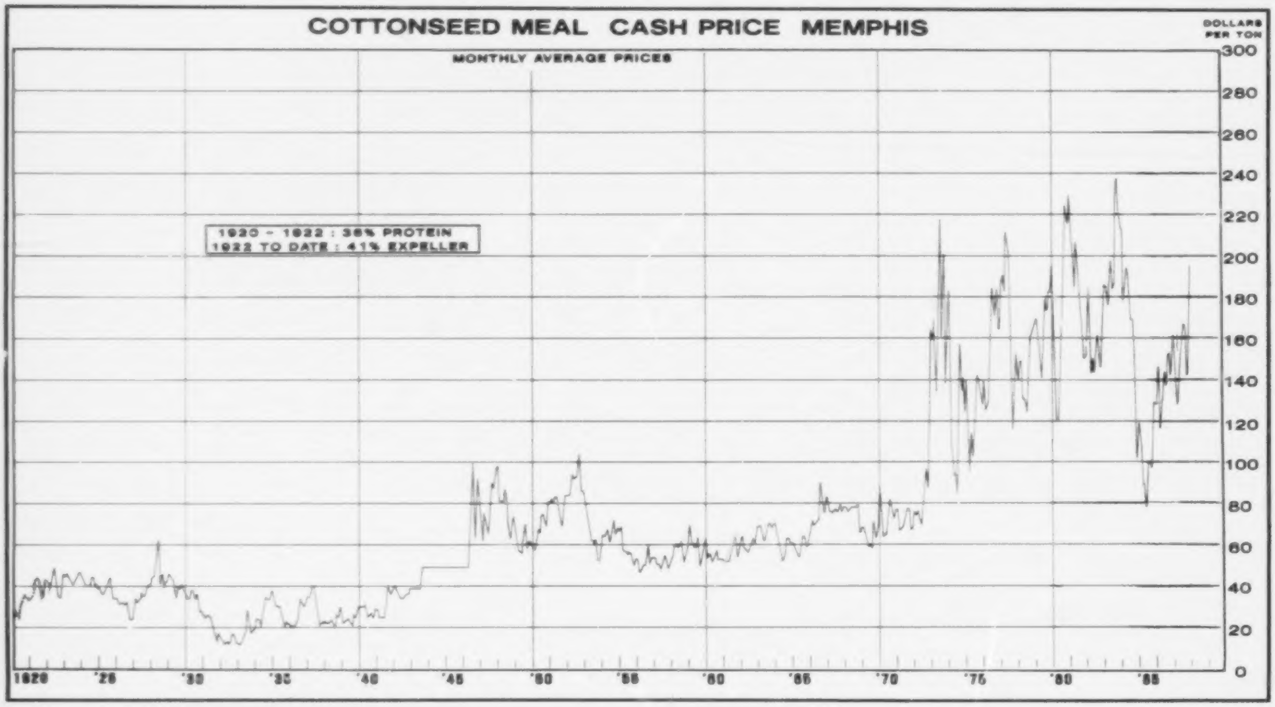
Yr. Begin. Aug. 1	Stocks	Production	Total Supply	Crush	Exports	Other	Total Disappearance	Farm Price $/Ton	Value of Production Mil. $	Products Produced		
	In Thousand Short Tons									Oil Mil. Lbs.	Meal Ths. Sh. Tons	Linters Ths. Running Bales
1980–1	1,058	4,471	5,529	4,076	133	922	5,131	129.0	574.5	1,195	1,790	1,097
1981–2	398	6,397	6,795	4,575	45	1,394	6,014	86.0	549.0	1,551	2,190	1,210
1982–3	781	4,744	5,525	3,800	12	1,342	5,154	77.0	366.2	1,134	1,588	1,029
1983–4	371	3,076	3,447	2,583	50	698	3,331	166.0	511.5	777	1,134	699
1984–5	116	5,149	5,265	3,514	60	1,285	4,859	100.0	512.0	1,174	1,732	955
1985–6	406	5,279	5,685	3,417	9	1,912	5,338	66.0	348.4	1,070	1,526	
1986–7[1]	347	3,801	4,148	2,520	17	1,422	3,959	78.0	296.5	800	1,146	
1987–8[2]	189	5,242	5,431	2,950	15	2,066	5,031	75.0	393.2	940	1,360	

[1] Preliminary [2] Forecast *Source: Economic Research Service, U.S.D.A.*

Supply & Distribution of Cottonseed Oil in the United States In Millions of Pounds

Crop Year[3] Beginning Oct.	Production	Imports for Consumption	Stocks Oct. 1	Total Supply	Disappearance			Per Capita Consumption – in Lbs. –	Utilization							
									Food Uses					Nonfood Uses		
					Exports	Total	Domestic		Shortening	Margarine	Salad & Cooking Oils	Other	Total	Foots & Loss	Other	Total
1981	1,551	—	80	1,631	847	1,527	680		167	22	402	12	603			
1982	1,134	2	104	1,240	546	1,150	604		142	31	444	16	634			
1983	777	18	90	885	303	835	532		143	35	366	17	562			
1984	1,174	—	50	1,224	433	1,117	684		156	77	399	33	607			
1985–6[1]	1,070	—	107	1,177	442	1,092	650		202		373		627			
1986–7[2]	800	—	85	885	250	775	525		150		400		700			
1987–8[2]	940	—	110	1,050	350	925	575									

[1] Preliminary. [2] Estimate. *Source: Economic Research Service, U.S.D.A.* T.201



U.S. Consumption of Cottonseed Oil in End Products[1] In Millions of Pounds

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1982–3	54.1	50.4	47.3	56.1	60.0	49.0	53.2	52.0	53.0	56.6	59.1	54.7	645.5
1983–4	54.3	42.4	39.7	46.8	46.9	47.5	55.5	52.1	48.8	57.3	50.1	45.6	587.0
1984–5	43.1	35.5	42.8	55.1	63.5	54.2	58.4	59.2	52.3	64.0	50.2	45.2	623.4
1985–6[2]	40.4	44.8	58.8	50.5	49.1	53.0	61.0	53.2	50.8	53.2	50.8	63.6	629.2
1986–7[2]	50.5	47.9	57.3	52.7	53.0	52.0	48.0	49.6	50.9	47.8	45.1	50.0	604.8
1987–8[2]	50.9	58.5	52.7	62.3									

[1] Includes small amount exported but does not include imported oil. [2] Preliminary. *Source: Bureau of the Census* T.206

U.S. Exports of Cottonseed Oil (Crude & Refined) In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	41.2	146.2	110.6	68.6	74.5	67.0	63.7	47.3	68.4	52.2	60.0	54.7	854.4
1983	41.8	58.8	97.0	25.8	53.0	23.8	42.5	15.5	20.6	10.5	18.4	21.8	429.5
1984	36.4	39.9	31.8	32.9	46.5	12.8	29.9	8.8	13.1	11.0	37.1	77.3	377.5
1985	47.1	72.7	37.7	38.9	22.9	20.6	17.5	13.1	36.2	19.1	30.1	65.6	421.5
1986	21.9	39.6	32.6	52.6	59.6	27.3	25.1	46.7	13.2	9.3	20.9	25.2	374.0
1987[1]	7.1	14.1	27.5	10.5	25.0	27.0	9.6	12.2					

[1] Preliminary. *Source: Dept. of Commerce* T.205

Average Wholesale Price of Cottonseed Meal (41% Solvent) at Memphis In Dollars Per Short Ton

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	184.70	159.40	138.00	148.10	143.75	150.00	158.75	161.50	150.00	145.60	161.70	166.25	155.65
1983	169.40	165.60	153.00	173.40	167.50	164.90	186.90	227.00	237.50	245.00	219.20	214.00	232.34
1984	212.60	178.10	187.30	194.10	190.00	177.50	169.30	168.90	151.60	114.90	101.60	119.40	163.78
1985	109.75	105.60	89.10	82.75	78.10	94.40	99.75	100.00	96.90	116.50	128.75	127.82	102.45
1986	146.25	128.75	115.60	129.25	133.75	132.50	137.00	150.60	152.50	141.90	157.50	160.50	140.51
1987	146.25	138.10	128.00	133.75	149.60	154.50	166.90	163.80	141.50	150.00	195.00		

Source: Economic Research Service, U.S.D.A. T.196

COTTONSEED AND PRODUCTS

Cottonseed Crushed (Consumption) in the United States In Thousands of Short Tons

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1981–2	191.6	186.2	323.5	455.5	473.3	478.8	446.6	482.3	424.1	426.7	357.1	329.6	4,575
1982–3	290.3	285.8	391.5	481.7	432.6	435.6	368.7	321.7	240.5	214.6	164.2	172.3	3,800
1983–4	166.6	120.7	187.9	301.8	296.6	347.8	289.7	294.7	205.6	173.2	124.3	74.1	2,579
1984–5	70.2	72.6	274.3	423.1	424.2	453.4	394.5	395.3	316.2	279.5	219.6	191.3	3,514
1985–6	194.6	197.0	338.0	411.4	368.8	431.5	361.0	349.8	281.3	213.8	154.5	115.3	3,417
1986–7[1]	141.4	167.7	208.5	262.2	283.2	323.5	278.4	255.8	214.7	171.3	134.2	78.8	2,520
1987–8[1]	71.4	137.7	244.2										

[1] Preliminary. *Source: Bureau of Census*

T.197

Production of Cottonseed Cake and Meal in the United States In Thousands of Short Tons

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1981–2	88.3	88.7	152.1	220.2	219.0	226.9	206.5	220.3	195.3	195.9	164.4	150.2	2,128
1982–3	129.8	129.3	173.5	219.4	197.3	195.1	167.0	146.7	107.8	97.1	71.4	78.9	1,713
1983–4	78.8	55.3	86.7	144.5	140.9	162.4	134.7	136.2	95.1	76.7	55.9	35.8	1,203
1984–5	32.2	32.6	127.3	198.4	198.7	207.7	180.4	181.6	145.0	128.8	99.1	86.2	1,619
1985–6	87.9	90.7	153.1	187.6	169.4	199.1	166.4	159.1	128.6	97.5	71.5	51.9	1,563
1986–7[1]	64.4	77.7	95.0	121.2	130.3	151.1	128.7	116.1	100.0	80.0	61.3	37.3	1,163
1987–8[1]	32.2	58.3	119.1										

[1] Preliminary. *Source: Bureau of Census*

T.198

U.S. Production of Crude Cottonseed Oil In Millions of Pounds

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1981–2	62.1	60.9	111.2	153.5	161.8	154.1	145.6	155.9	138.4	140.1	117.5	105.9	1,507
1982–3	92.0	88.8	129.8	157.3	143.3	137.6	117.7	102.6	75.8	69.0	53.1	55.7	1,223
1983–4	54.6	37.1	58.6	94.6	93.6	109.5	91.3	96.6	69.3	55.4	40.1	24.4	825
1984–5	21.7	21.6	84.3	132.5	132.5	141.5	124.3	123.3	96.3	87.0	67.7	62.9	1,096
1985–6	60.9	60.7	105.6	129.8	117.1	136.4	115.5	112.0	93.5	69.6	50.1	37.8	1,089
1986–7[1]	48.0	54.5	64.5	83.5	91.4	103.7	90.3	83.3	70.6	55.2	43.5	25.4	814
1987–8[1]	22.6	46.9	79.0										

[1] Preliminary. *Source: Bureau of Census*

T.199

United States Production of Refined Cottonseed Oil In Millions of Pounds

Year	Aug.	Sept	Oct.	Nov	Dec	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1981–2	56.9	53.1	84.7	129.3	144.6	110.2	121.2	135.7	124.9	128.9	121.8	104.8	1,316
1982–3	91.3	76.7	91.5	127.3	124.5	119.2	113.4	103.1	82.6	78.0	60.1	56.5	1,124
1983–4	55.2	39.2	54.6	91.1	97.7	99.7	98.4	100.6	89.1	71.5	43.4	30.5	871
1984–5	25.7	27.8	64.5	121.4	117.6	135.8	122.2	101.9	93.3	95.4	74.6	68.2	1,043
1985–6[1]	55.9	57.0	87.5	117.1	112.0	118.3	104.0	112.9	99.9	63.7	54.9	42.4	1,027
1986–7[1]	60.3	51.2	73.5	90.9	97.6	103.7	95.3	90.3	74.9	59.8	51.0	45.5	894
1987–8[1]	45.8	56.9	71.5	113.3									

[1] Preliminary. *Source: Bureau of Census*

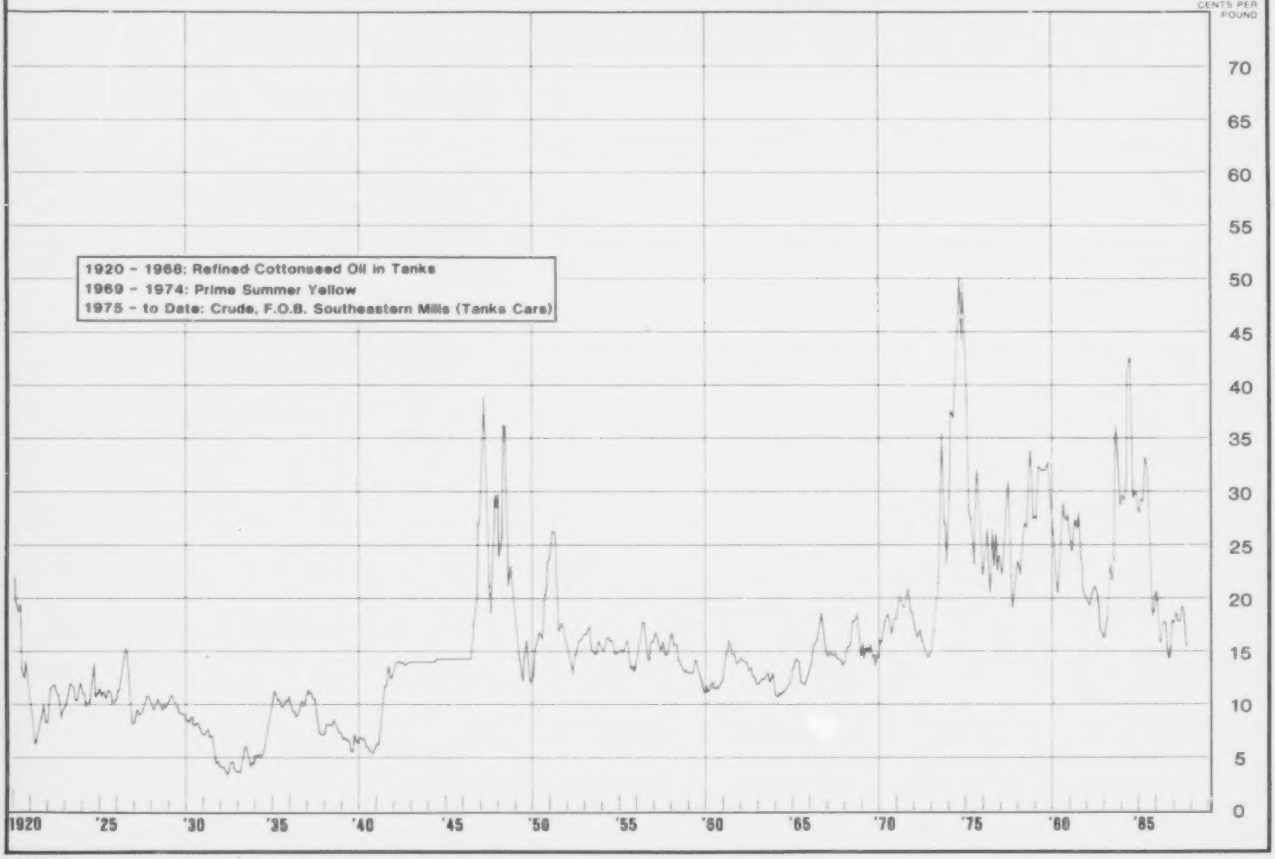
T.202

U.S. Stocks of Cottonseed Oil (Crude & Refined) at End of Month In Millions of Pounds

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1981–2	109.4	80.0	102.6	127.2	133.1	165.7	148.3	152.0	160.1	147.8	144.5	154.1
1982–3	115.2	103.6	121.1	148.9	172.2	175.3	175.1	158.1	164.6	130.4	113.6	108.9
1983–4	96.7	89.6	82.5	108.6	144.6	152.5	152.1	172.6	167.4	131.7	111.5	86.1
1984–5	61.2	49.8	57.6	74.6	79.4	89.6	98.6	114.2	114.7	107.7	105.8	124.4
1985–6	131.2	106.9	106.2	127.9	130.2	162.0	184.1	197.7	179.7	168.0	154.5	110.4
1986–7[1]	90.4	84.9	77.0	101.1	130.6	165.4	188.2	207.4	204.2	236.3	190.9	166.1
1987–8[1]	127.3	90.2	107.2	138.5								

[1] Preliminary. *Source: Bureau of Census*

T.203



COTTONSEED OIL CASH PRICE NEW YORK

Average Price of Crude Cottonseed Oil, F.O.B. Southeastern Mills (Tank Cars) In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	24.3	23.8	22.4	20.4	20.9	22.3	27.8	29.0	27.5	27.2	27.8	27.0	25.0
1981	25.3	24.2	25.3	27.3	26.7	26.6	27.9	24.6	20.7	20.5	20.4	19.8	24.1
1982	19.9	19.5	19.1	20.4	21.0	21.1	20.9	20.3	18.0	16.9	16.8	16.3	19.2
1983	16.3	17.8	18.3	21.4	23.4	21.6	23.6	33.3	36.2	31.7	29.0	28.7	25.1
1984	29.8	29.1	30.1	31.4	41.1	42.6	36.3	32.7	31.0	30.6	31.0	29.3	32.9
1985	27.4	30.1	30.2	32.3	33.3	32.6	29.1	23.8	20.7	18.3	18.9	20.6	26.4
1986	19.9	17.6	15.8	17.5	17.7	17.9	17.6	15.1	14.3	15.4	17.9	17.7	17.0
1987	18.4	18.6	17.9	17.9	18.9	19.3	19.0	16.7	15.4				

Source: Economic Research Service, U.S.D.A. T.204

U.S. Exports of Cottonseed Oil to Important Countries In Thousands of Metric Tons

Yr. Beg. Oct. 1	Canada	Costa Rica	Dom. Rep.	Egypt	W. Germany	Guatemala	India	Salvador	Japan	Korea	Netherlands	South Africa	Turkey	United Kingdom	Venezuela	Total
1980–1	2.5	1.0	33.2	75.6	—	0	27.2		40.2	2.5	5.8		—	1.5	109.1	321.9
1981–2	4.3	3.1	27.3	156.2	2.3	9.9	0	14.4	41.2	3.0	10.2		0	3.5	91.2	384.4
1982–3	4.3	.5	6.6	66.3	3.3	15.3	0	14.1	34.6	2.5	5.1	1.2	0	1.5	73.8	247.5
1983–4	3.5	0	4.5	31.2	7.9	1.1	—	5.3	16.7	2.9	2.1	1.8	—	3.0	55.4	137.4
1984–5	3.3	1.0	3.9	55.9	—	9.8	—	15.6	22.8	1.8	5.8	2.0	—	1.5	70.0	196.2
1985–6	2.7	—	5.9	37.8	4.9	11.1	—	29.7	26.3	4.5	8.0	1.6	—	.5	48.6	200.7
1986–7[1]	2.9	—	1.9	0	.1	2.2	—	10.9	17.9	5.8	5.0	.5	—	0	44.6	97.7

[1] Preliminary. *Source: U.S. Bureau of the Census* T.202A

Currencies

In February 1987, the Group of 7 (G-7) central bankers met at the Louvre in Paris and agreed to try to stop the U.S. dollar's decline. Under the resulting Louvre Accord, the dollar was to be contained within an unpublicized range by jawboning and central bank intervention in the foreign exchange (FOREX) markets.

The dollar's decline had begun in March 1985, and in September 1985 finance ministers from the U.K., West Germany, France and Japan met with Treasury Secretary Baker at the Plaza Hotel in New York to further pressure the dollar, which was then considered overvalued.

In 1987, the U.S. was facing domestic political pressure to reduce its trade deficit. While an expanding U.S. economy was the engine that had brought the world out of the early 1982 doldrums, now the deficit was raising fears that the U.S. was mortgaging its future to finance consumption.

This was exacerbated by a Congress that seemed to have trouble saying "no" to spending bills. As the federal deficit rose, confidence in the dollar declined, and the Treasury became increasingly dependent on sales of government securities to overseas investors, particularly in Japan and West Germany. Finally, traders feared that one day foreign buyers of bonds, particularly the Japanese, would become conspicuous by their absence at a Treasury quarterly refunding.

Moreover, the FOREX markets concentrated on monthly releases of the trade deficit figures in 1987. As the trade deficit set records, the dollar sank through floors that traders assumed the G-7 had set.

According to the Federal Reserve Bank of New York, which conducts FOREX intervention, other G-7 banks began buying substantial amounts of dollars in late March 1987. But spring's inflation-fear rally in commodity prices, coupled with a swiftly falling bond market, pushed the dollar to a 7-year low of 1.759 marks and to 137.95 yen (just above a 40-year low) in early May. This forced the New York Fed's trading desk to buy $140 million versus sales of marks and $20 million versus sales of yen during May's first two business days. The quantitites were trivial, considering the size of the market, but the fact that the Fed was buying put dollar bears on the defensive.

Additional support came from Fed Chairman Volcker's statement that the Fed had "snugged" monetary policy to support the dollar, and from Japan's statements that short-term interest rates would be eased. However, although the interest rate differential favored the dollar by the largest margin in years, psychological support evaporated when Chairman Volcker announced his retirement in June, and the Fed again intervened. By mid-June's Venice economic summit, which announced plans to monitor the dollar more closely, the dollar was beginning to strengthen. By the end of July, it had recovered to 1.86 marks and to 150.05 yen. The Fed had spent $806 million in support of the dollar, and the other central banks had been rumored to be even more active.

However, in the fall, the dollar was unable to recover from increased selling on the trade deficit numbers. The U.S. economy showed signs of sluggishness, and the West German economy also appeared to need stimulus. The Bundesbank continued to fight inflation, which was running at about a 1 percent annual rate. The new Fed Cairman, Alan Greenspan, raised the discount rate in September by 0.5 point, but the market clamored for a larger boost. However, on Black Monday, the Fed had to flood the U.S. with liquidity. The discount rate ended the year at 6 percent.

Black Monday was in part triggered by Treasury Secretary Baker's October warning that the U.S. might let the dollar drift lower to force West Germany and Japan to stimulate. As 1987 ended, the dollar was down to 120.25 yen and to 1.5630 marks.

Although 1988 began with a dollar rally based on central bank intervention, traders viewed the intervention as throwing some $4 billion in good money after bad, and expectations for a still lower greenback continued.

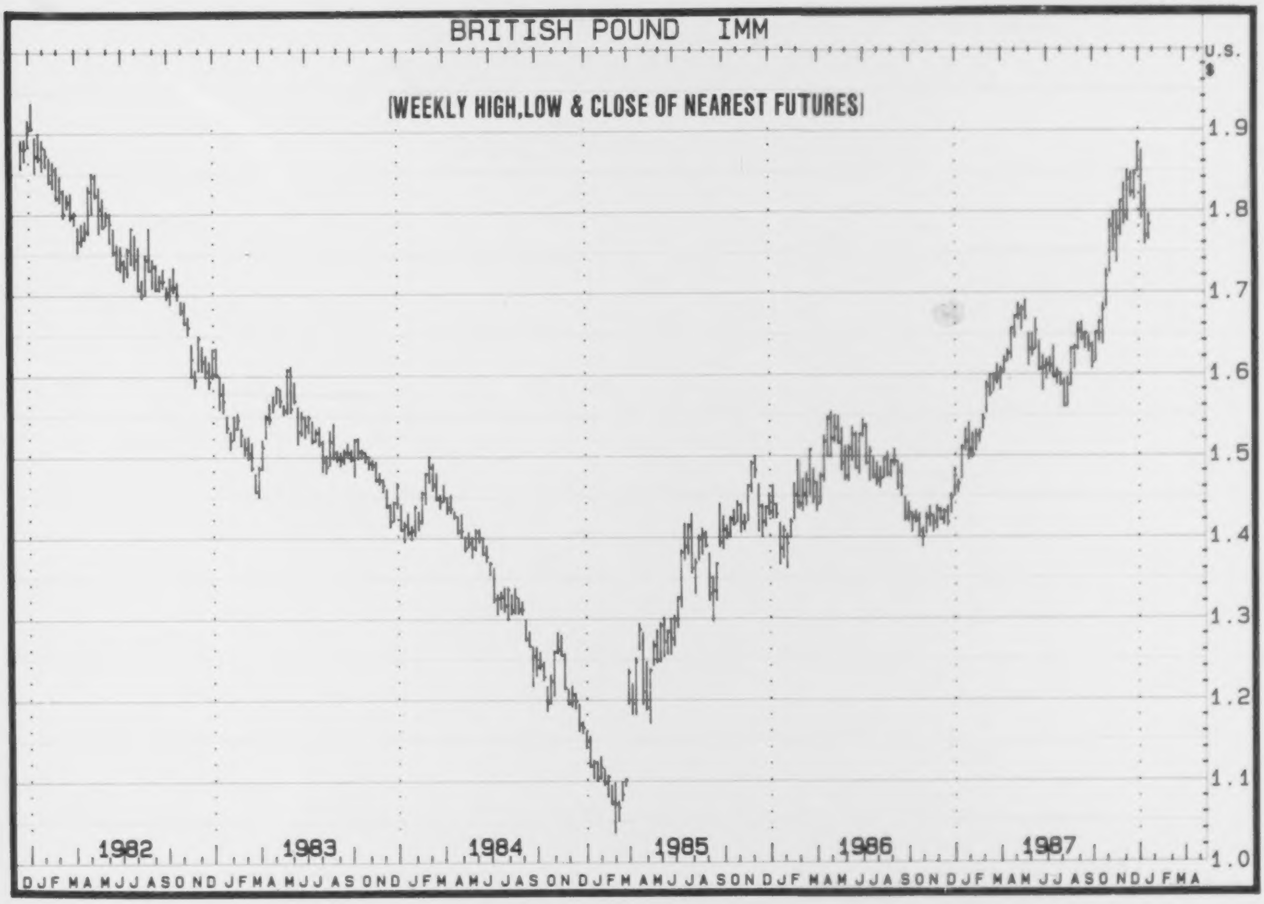
Futures Markets

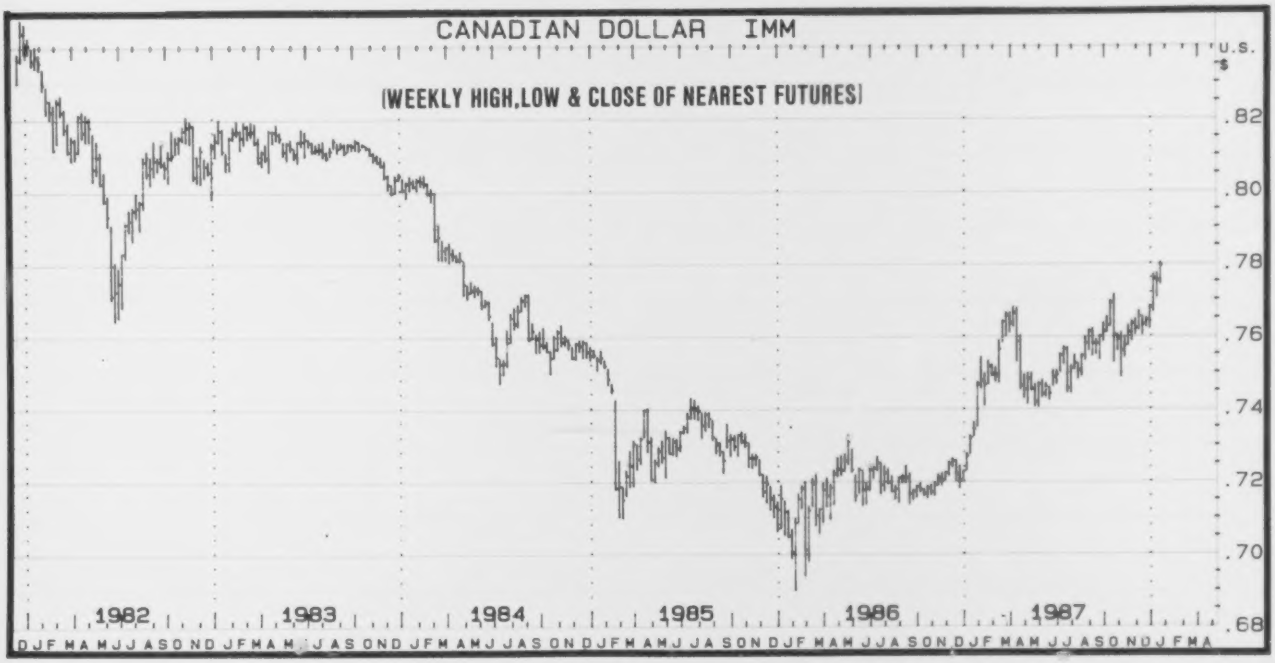
The Chicago Mercantile Exchange's International Monetary Market (IMM) has futures contracts in the British pound, Swiss franc, Deutschemark, Japanese yen, and Australian and Canadian dollars.

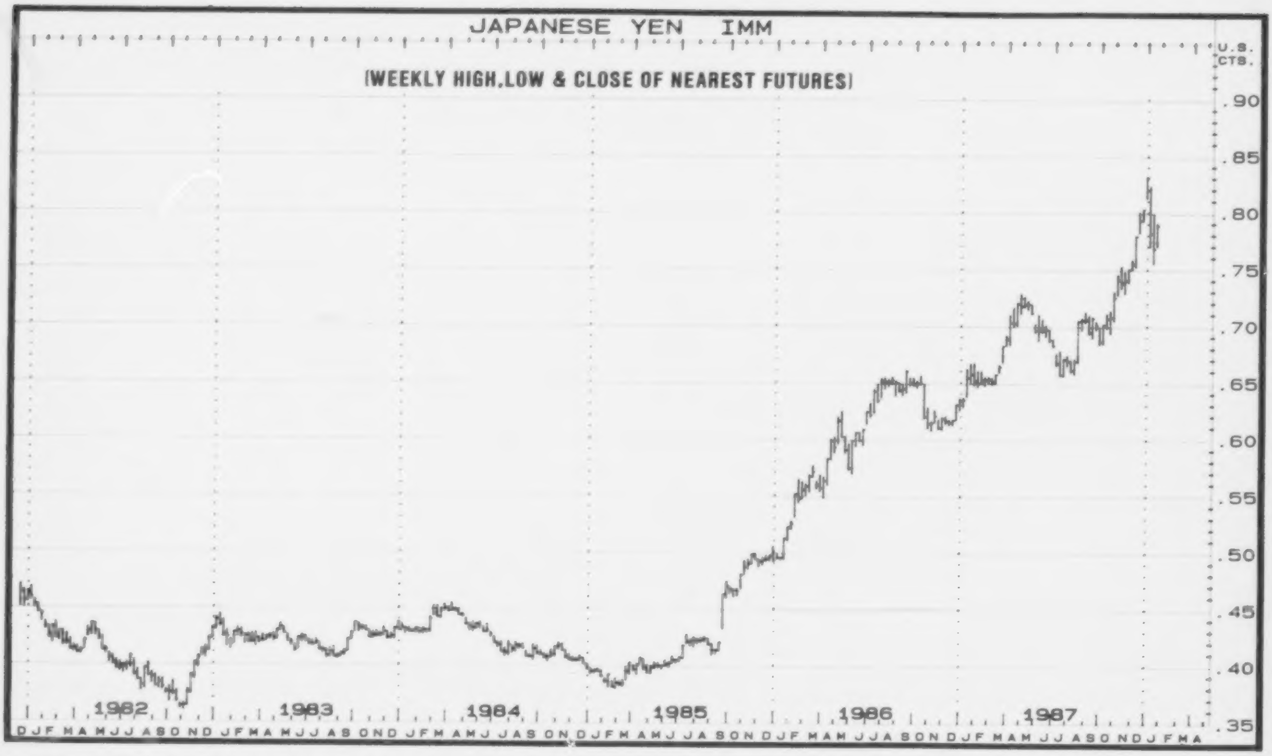
Monthly Close of the CRB Currency Futures Index 1977 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1979			Not calculated prior to Sept 1979.						125.1	120.2	121.3	122.9
1980	122.9	120.5	115.1	120.2	122.7	123.6	121.7	124.5	125.0	123.8	121.9	122.5
1981	118.7	115.2	116.3	112.9	109.3	107.2	103.1	104.2	106.4	109.8	112.7	111.6
1982	109.4	105.6	104.7	106.6	104.0	99.7	100.2	93.9	97.7	96.2	98.8	102.4
1983	99.4	98.8	98.8	99.8	99.0	98.5	96.8	95.7	97.4	97.1	96.3	96.2
1984	93.9	97.1	97.7	95.1	94.1	92.2	88.8	89.8	86.2	86.5	84.3	83.1
1985	81.6	78.0	84.2	83.4	84.8	85.5	91.4	90.3	93.9	95.9	98.7	98.8
1986	99.5	103.9	103.3	108.5	104.3	109.6	112.4	113.2	112.3	109.2	112.0	114.4
1987	118.5	119.5	123.3	125.7	123.4	122.9	120.6	123.8	122.6	128.7	134.8	141.3

Source: Commodity Research Bureau.

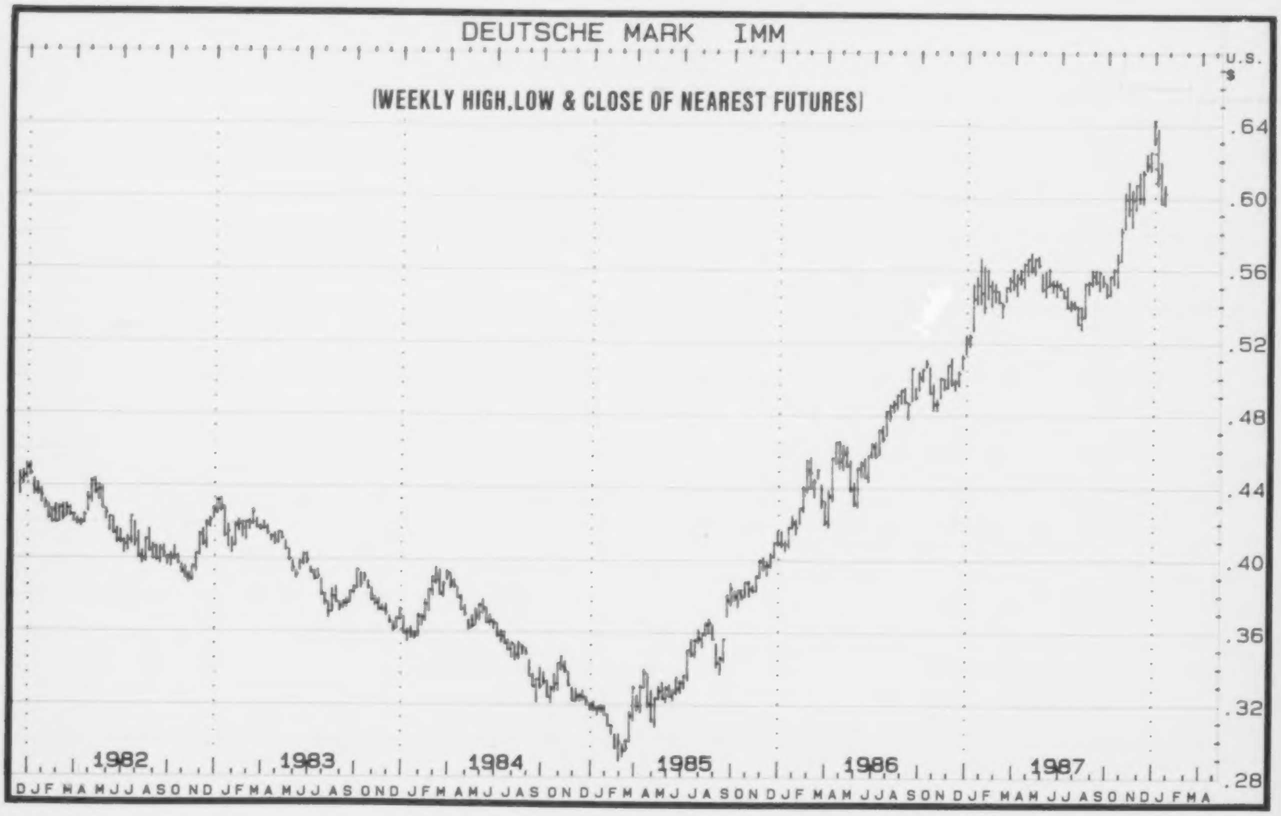

BRITISH POUND IMM
(WEEKLY HIGH,LOW & CLOSE OF NEAREST FUTURES)
U.S. $
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
1982
1983
1984
1985
1986
1987
D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A


CANADIAN DOLLAR IMM
(WEEKLY HIGH,LOW & CLOSE OF NEAREST FUTURES)
U.S. $
.82
.80
.78
.76
.74
.72
.70
.68
1982
1983
1984
1985
1986
1987
D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A



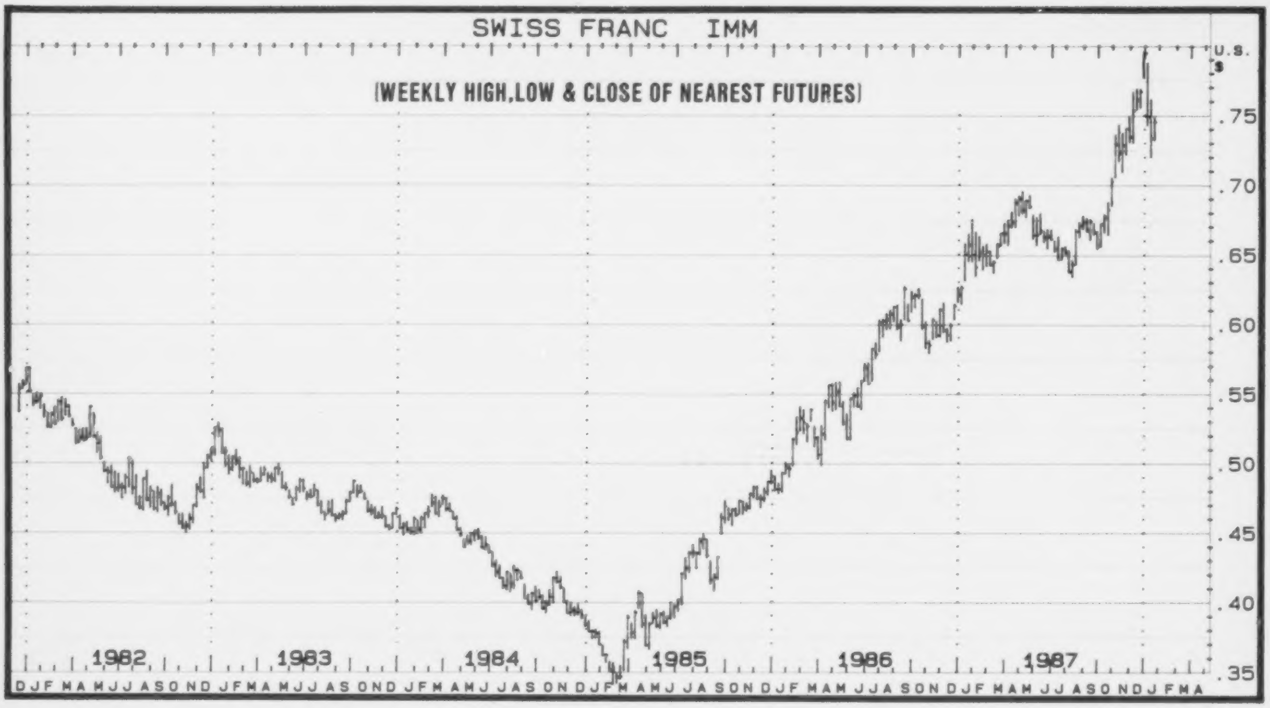
JAPANESE YEN IMM

(WEEKLY HIGH,LOW & CLOSE OF NEAREST FUTURES)



DEUTSCHE MARK IMM

(WEEKLY HIGH,LOW & CLOSE OF NEAREST FUTURES)



Canadian Dollars per U.S. Dollar

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	1.192	1.214	1.220	1.230	1.225	1.275	1.268	1.250	1.234	1.229	1.226	1.238	1.233
1983	1.228	1.227	1.226	1.232	1.228	1.232	1.233	1.233	1.232	1.232	1.237	1.247	1.232
1984	1.248	1.248	1.269	1.279	1.294	1.304	1.323	1.303	1.314	1.318	1.316	1.320	1.295
1985	1.324	1.354	1.383	1.364	1.375	1.367	1.352	1.357	1.369	1.366	1.376	1.395	1.365
1986	1.407	1.404	1.400	1.387	1.375	1.389	1.380	1.388	1.387	1.388	1.387	1.379	1.389
1987	1.360	1.334	1.319	1.319	1.341	1.338	1.326	1.325	1.315				

Source: Economic Research Service, U.S.D.A. T.0581

German Marks per U.S. Dollar

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	2.293	2.365	2.379	2.397	2.308	2.430	2.464	2.477	2.502	2.530	2.555	2.419	2.427
1983	2.389	2.428	2.408	2.439	2.465	2.548	2.590	2.673	2.670	2.601	2.682	2.749	2.553
1984	2.810	2.698	2.596	2.647	2.746	2.738	2.848	2.882	3.028	3.066	2.997	3.102	2.846
1985	3.169	3.300	3.296	3.087	3.103	3.062	2.906	2.792	2.836	2.643	2.594	2.511	2.942
1986	2.437	2.330	2.276	2.268	2.226	2.232	2.148	2.060	2.040	2.005	2.023	1.988	2.169
1987	1.858	1.823	1.834	1.810	1.787	1.819	1.848	1.855	1.812				

Source: Economic Research Service, U.S.D.A. T.0582

Japanese Yen per U.S. Dollar

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	224.7	235.1	240.7	244.9	236.5	251.0	255.1	258.8	262.6	271.3	265.1	241.0	248.8
1983	232.5	236.1	238.0	237.6	234.7	240.0	240.4	244.4	242.9	232.3	234.9	234.3	237.5
1984	233.7	233.5	225.2	225.2	230.4	233.4	243.0	242.0	245.3	246.7	243.5	247.8	237.5
1985	254.1	260.2	257.8	251.5	251.6	248.8	241.1	237.3	236.2	214.6	203.8	202.7	238.3
1986	199.8	184.8	178.6	174.7	166.9	167.4	158.1	154.1	154.6	156.4	162.8	162.2	168.4
1987	154.7	153.3	151.3	142.8	140.4	144.5	150.3	147.3	143.2				

Source: Economic Research Service, U.S.D.A. T.0583

CURRENCIES

British Pound Per U.S. Dollar

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	.6341	.6525	.6706	.6505	.6358	.6456	.6539	.6654	.6669	.6675	.6766	.6971	.6592
1984	.7102	.6931	.6864	.7036	.7190	.7257	.7572	.7608	.7954	.8197	.8066	.8428	.7517
1985	.8861	.9141	.8903	.8066	.8001	.7817	.7241	.7226	.7329	.7031	.6946	.6919	.7790
1986	.7014	.6999	.6809	.6671	.6564	.6625	.6631	.6726	.6809	.7006	.7017	.6945	.6818
1987	.6641	.6541	.6278	.6128	.6000	.6139	.6213	.6249	.6077				

Source: Economic Research Service, U.S.D.A. T.0580

Month–End Open Interest of British Pound Futures in Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	20,803	24,311	19,495	24,032	32,900	21,098	22,643	23,505	19,183	18,641	23,105	16,968
1984	20,972	27,563	17,939	20,035	17,876	13,072	15,710	15,105	15,473	18,921	21,701	15,624
1985	22,230	23,911	29,487	31,486	50,437	38,496	46,123	41,685	24,982	28,699	35,562	25,082
1986	38,235	40,880	28,187	39,520	30,584	24,702	26,211	27,788	37,506	36,992	34,127	23,145
1987	27,615	41,391	37,799	40,247	42,731	33,006	39,754	43,281	26,290	41,563	46,132	28,593

Source: International Monetary Market (Chicago) T.0584

Month–End Open Interest of Canadian Dollar Futures in Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec
1983	21,733	15,270	13,594	13,015	11,695	13,608	12,453	10,466	5,764	6,544	6,979	5,131
1984	5,624	5,607	9,572	12,306	10,484	7,684	8,244	8,197	6,397	7,737	10,641	7,775
1985	9,248	12,208	11,132	10,503	12,479	8,145	8,817	9,461	4,771	4,801	8,516	13,929
1986	18,922	15,075	9,748	13,670	14,977	9,400	13,739	17,501	9,358	12,377	14,648	14,937
1987	23,106	24,837	27,963	24,537	25,406	19,674	19,033	23,449	21,422	19,138	19,321	14,908

Source: International Monetary Market (Chicago) T.0585

Month–End Open Interest of Deutschemark Futures in Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	16,806	16,653	18,195	22,944	25,382	23,269	27,585	23,531	30,077	24,460	23,385	22,804
1984	24,830	38,569	37,871	33,228	34,665	25,166	29,713	34,871	37,068	42,785	44,888	33,746
1985	49,483	45,759	48,190	47,318	52,909	50,400	56,977	54,966	42,696	50,796	57,347	53,525
1986	56,622	70,411	53,054	58,819	58,486	38,698	50,631	57,849	45,708	47,807	58,346	44,292
1987	60,164	57,902	41,702	46,932	52,082	32,140	42,132	48,534	31,167	43,385	59,808	32,536

Source: International Monetary Market (Chicago) T.0586

Month–End Open Interest of Japanese Yen Futures in Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	26,913	31,388	23,095	31,378	39,661	28,279	32,731	27,510	37,616	36,891	34,976	32,998
1984	28,988	34,456	42,730	30,390	28,035	16,121	18,197	20,172	15,431	21,592	19,828	13,542
1985	13,755	16,206	21,333	17,893	18,251	22,258	37,861	35,896	32,581	37,658	39,605	28,058
1986	31,732	33,792	31,305	38,348	38,363	37,443	47,528	49,571	30,463	43,062	41,052	23,172
1987	32,164	31,988	43,282	47,410	51,681	27,969	38,334	52,905	37,058	46,297	60,299	42,656

Source: International Monetary Market (Chicago) T.0587

Month–End Open Interest of Swiss Franc Futures in Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	28,628	29,288	22,848	30,877	33,679	26,930	29,997	25,367	31,106	23,808	26,793	21,450
1984	23,067	30,948	25,407	25,118	25,548	18,402	19,093	21,229	18,812	21,485	23,562	17,861
1985	24,406	28,898	22,446	27,144	32,175	27,891	34,160	35,850	25,988	28,190	35,047	27,351
1986	29,412	39,151	28,521	34,855	30,766	32,254	35,466	44,717	26,619	32,621	34,495	23,138
1987	33,581	36,210	29,102	31,854	33,551	24,351	29,387	31,898	23,328	29,809	40,772	24,298

Source: International Monetary Market (Chicago) T.0588

Index of Trade-Weighted Dollar Exchange Rates for Soybeans—April 1971 = 100

Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	Nominal	157.5	155.1	152.9	155.0	162.1	162.4	166.8	168.0	172.6	175.6	175.2	180.6
	Real	94.6	92.1	89.3	90.4	93.2	93.4	96.5	97.4	100.7	101.6	99.6	102.1
1985	Nominal	185.1	191.9	194.5	187.8	190.3	197.3	203.2	201.4	209.7	210.2	229.2	113.8
	Real	103.4	107.4	107.3	101.8	102.4	101.9	98.7	96.5	97.6	92.4	91.6	84.4
1986	Nominal	112	107	105	105	103	103	161	250	266	280	294	305
	Real	82	79	76	76	74	75	75	75	75	75	76	75
1987[1]	Nominal	314	327	343	358	374	394	412	428	444	460	491	
	Real	72	71	71	69	69	70	71	71	69	69	69	

[1] Preliminary. *Nominal* values are percentage changes in currency units per dollar, weighted by proportion of agricultural exports from the United States. An increase indicates that the dollar has appreciated. *Real* values are computed in the same way as the nominal series, adjusted for CPI changes in the countries involved. *Source: Economic Research Service, U.S.D.A.* T.0590

Index of Trade-Weighted Dollar Exchange Rates for Wheat—April 1971 = 100

Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	Nominal	2,126	2,334	2,588	2,803	3,018	3,305	3,645	3,958	4,395	4,612	5,378	5,865
	Real	102.7	102.2	101.1	102.3	103.5	104.1	104.4	104.5	105.5	105.2	106.4	106.9
1985	Nominal	6,598	7,285	7,988	9,093	996.1	11,012	11,996	13,008	14,116	15,607	17,029	18,368
	Real	108.9	109.6	108.8	109.0	110.1	111.5	110.6	110.0	110.8	109.0	108.9	103.8
1986	Nominal	20,580	23,953	26,425	26,457	26,533	26,449	26,499	26,501	26,514	26,733	27,020	27,616
	Real	102	102	102	101	100	101	100	102	102	109	110	107
1987[1]	Nominal	29,557	34,601	39,700	44,815	57,302	73,477	83,997	88,101	93,144	99,717	109,724	
	Real	105	104	106	103	104	106	106	104	103	102	101	

[1] Preliminary. *Nominal* values are percentage changes in currency units per dollar, weighted by proportion of agricultural exports from the United States. An increase indicates that the dollar has appreciated. *Real* values are computed in the same way as the nominal series, adjusted for CPI changes in the countries involved. *Source: Economic Research Service, U.S.D.A.* T.0590A

Index of Trade-Weighted Dollar Exchange Rates for Corn—April 1971 = 100

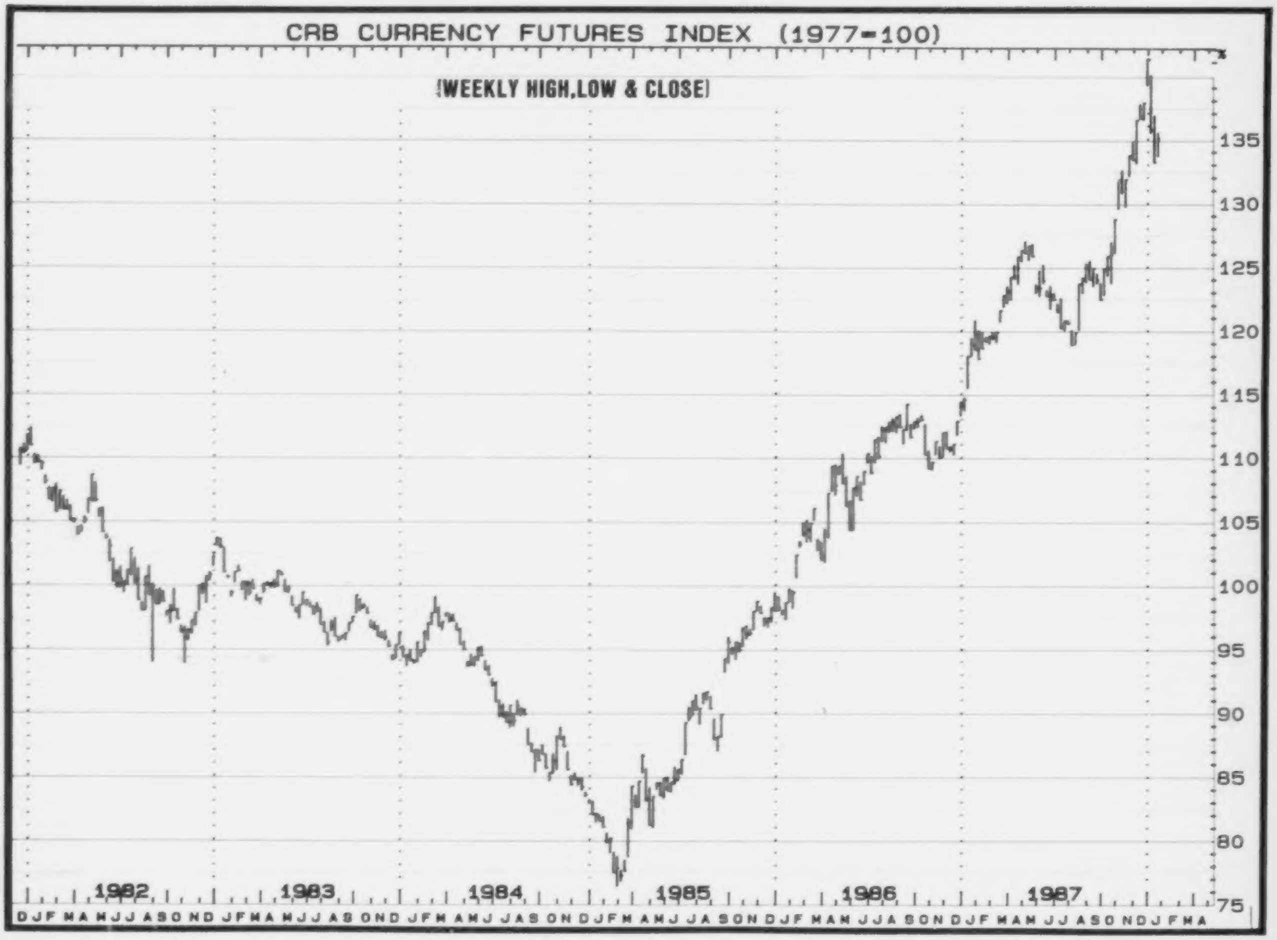
Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	Nominal	497.1	526.7	563.2	598.6	640.6	684.1	740.4	789.2	860.0	897.8	1,013	1,093
	Real	97.7	95.4	92.7	93.6	96.5	96.5	99.4	100.3	103.2	104.1	102.5	104.7
1985	Nominal	1,212	1,326	1,438	1,599	1,740	1,905	2,067	2,227	2,403	2,627	2,865	2,903
	Real	106.1	109.4	109.4	104.4	105.2	104.7	102.3	100.3	101.5	97.0	96.8	86.9
1986	Nominal	3,227	3,720	4,081	4,086	4,095	4,083	4,172	4,297	4,320	4,369	4,430	4,534
	Real	85	81	79	78	77	77	78	80	80	80	80	79
1987[1]	Nominal	4,842	5,631	6,407	7,158	9,020	11,436	13,013	13,642	14,427	15,392	16,943	
	Real	76	76	76	74	73	74	75	74	73	72	72	

[1] Preliminary. *Nominal* values are percentage changes in currency units per dollar, weighted by proportion of agricultural exports from the United States. An increase indicates that the dollar has appreciated. *Real* values are computed in the same way as the nominal series, adjusted for CPI changes in the countries involved. *Source: Economic Research Service, U.S.D.A.* T.0591

Index of Trade-Weighted Dollar Exchange Rates for Cotton—April 1971 = 100

Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	Nominal	182.5	181.4	180.4	184.0	185.8	187.2	190.3	191.1	195.5	197.0	197.6	207.0
	Real	93.6	92.8	91.6	92.1	93.3	94.2	95.6	96.1	97.0	97.8	98.0	99.1
1985	Nominal	209.3	211.5	212.9	211.3	212.8	212.8	213.3	213.0	215.1	212.8	214.8	216.4
	Real	100.0	101.6	102.3	101.0	101.7	101.1	99.9	99.8	100.6	98.4	97.5	97.3
1986	Nominal	216	214	228	227	226	233	231	230	233	236	237	237
	Real	97	95	94	93	92	92	91	90	91	92	92	92
1987[1]	Nominal	234	233	233	272	270	269	269	269	292	267	280	
	Real	91	90	90	89	87	87	88	87	86	86	86	

[1] Preliminary. *Nominal* values are percentage changes in currency units per dollar, weighted by proportion of agricultural exports from the United States. An increase indicates that the dollar has appreciated. *Real* values are computed in the same way as the nominal series, adjusted for CPI changes in the countries involved. *Source: Economic Research Service, U.S.D.A.* T.0591A



Index of Trade-Weighted Dollar Exchange Rates for Total Agriculture April 1971 = 100

Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	Nominal		NOT		304.6	318.0	329.2	354.4	384.1	403.2	429.8	454.4	478.4
	Real		AVAILABLE		91.2	91.4	93.0	94.9	97.2	96.5	95.0	96.2	97.3
1984	Nominal	505.7	538.8	580.4	618.9	661.8	710.1	770.3	823.2	899.3	938.9	1,067	1,152
	Real	97.2	96.5	94.4	95.6	97.8	98.0	100.2	100.6	102.9	103.5	102.5	104.2
1985	Nominal	1,282	1,404	1,526	1,707	1,861	2,042	2,217	2,392	2,583	2,830	3,083	3,183
	Real	106.1	108.5	108.3	104.6	105.2	105.5	103.3	101.9	103.1	99.3	99.1	[illegible]
1986	Nominal	3,544	4,093	4,495	4,500	4,511	4,498	4,567	4,661	4,680	4,733	4,794	4,903
	Real	90	88	86	85	84	85	85	87	87	89	90	88
1987[1]	Nominal	5,238	6,102	6,954	7,783	9,838	12,507	14,245	14,933	15,794	16,859	18,559	
	Real	86	85	85	83	83	85	85	85	84	83	83	

[1] Preliminary. *Nominal* values are percentage changes in currency units per dollar, weighted by proportion of agricultural exports from the United States. An increase indicates that the dollar has appreciated. *Real* values are computed in the same way as the nominal series, adjusted for CPI changes in the countries involved. *Source: Economic Research Service, U.S.D.A.* T.0589

United States Merchandise Trade Balance In Millions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	-11,408	- 8,095	- 8,960	-10,588	-10,387	-12,068	-10,447	- 9,846	-14,559	-10,561	-12,267	-13,311	-126,461
1986	-13,049	-10,120	-10,846	-12,897	-11,763	-11,850	-14,502	-12,587	-13,277	-13,210	-14,002	-11,331	-139,255
1987	-10,711	-12,946	-11,421	-11,487	-12,529	-14,140	-14,836	-14,098	-12,587	-15,962			

Source: Bureau of the Census

Eggs

World egg production, excluding China's, was forecast by USDA to rise one percent in 1987 to 298 billion. The largest producers were the USSR, the U.S., and Japan, with 26 percent, 23 percent, and 12 percent of the total, respectively. In the European Community (EC), output fell by 1 percent, but exports increased; the USSR raised output by 3 percent, and reduced imports.

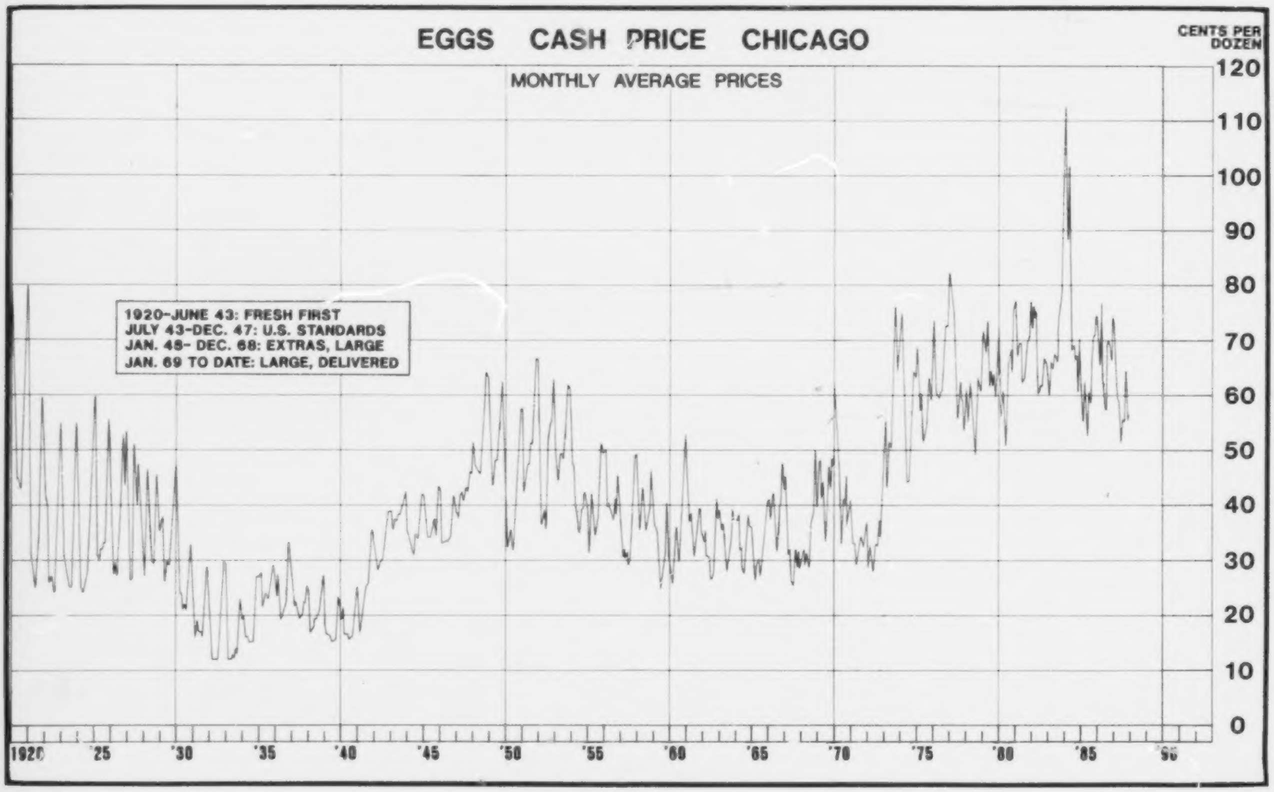
U.S. production was forecast to rise 2 percent in 1987 to 5.78 million dozen, due to favorable producer returns and a larger flock. The number of layers on farms in 1987 was forecast at 280 million, up slightly from 1986. Output of eggs per layer was 247, little changed from 1986. Although returns to producers continued to be favorable in 1987, costs were projected to rise slightly in 1988 with feed prices. With expectations of near break-even returns, U.S. egg output was forecast to fall slightly in 1988.

Egg breakings under federal inspection in Oct. 1986/Sept. 1987 rose 10 percent from a year earlier to 923 million dozen. Liquid egg production increased by 16 percent, frozen egg production by 3 percent, and dried egg output by 16 percent. Cold storage stocks of frozen egg products, as of September 30, 1987, were up 22 percent from a year earlier, reflecting a decline in exports for the first three quarters of 1987. U.S. per capita egg consumption was placed at unchanged from 1986's 251 eggs.

U.S. egg exports from Jan.-Aug. 1987 ran 10 percent behind the same period of 1986. Japan imported 32 million dozen U.S. eggs, down 30 percent from 1986. This reduced the U.S. market share in Japan from 67 percent in 1986 to 52 percent in 1987. The European Community, using subsidies, exported five times as many egg products to Japan in the first five months of 1987 as in the same 1986 period. For all of 1987, however, U.S. exports were expected to at least equal 1986 levels. The weaker dollar and lower egg prices were expected to make U.S. eggs attractive. The Export Enhancement Program (EEP) was also projected to be a positive factor. EEP sales to Hong Kong, the Dominican Republic, and Iraq were expected to boost shipments in late 1987 and early 1988.

U.S. imports fell in 1987; imports of shell eggs and shell equivalents of egg products totaled only 4.3 million dozen during the first three quarters of 1987; this was off 52 percent from the same 1986 period. The largest foreign supplier was Canada, providing 50 percent of U.S. egg imports. Israel and the Netherlands each provided about 20 percent of the total.

Prices in 1987 were below 1986, due to production increases. The 1987 wholesale price of New York Grade A large eggs was estimated to have averaged 63 cents/dozen, down from 71 cents in 1986.



EGGS

World Production[2] of Eggs In Billions of Eggs

Year	Argentina	Australia	Bel. & Lux	Brazil	Canada	Israel	France	West Germany	Italy	Japan	Netherlands	Poland	Spain	South Africa	USSR	United Kingdom[3]	United States
1980	3.4	3.4	3.3	9.6	5.9	1.6	14.5	13.7	10.7	33.4	9.0	8.9	11.7	2.4	70.9	14.0	69.7
1981	3.3	3.6	3.3	10.2	5.9	1.4	15.2	13.2	11.4	33.3	9.8	8.8	11.8	2.6	70.9	13.7	69.9
1982	3.2	3.4	3.3	10.2	5.9	1.8	15.9	13.1	11.2	34.3	10.7	7.6	12.4	3.1	72.4	13.5	69.6
1983	3.3	3.5	3.2	10.0	6.1	1.8	15.0	13.0	10.9	34.8	10.7	7.6	12.2	3.3	75.1	13.2	67.9
1984	3.2	3.5	3.1	9.5	5.9	2.1	14.9	13.1	10.8	35.5	11.1	8.2	10.1	3.3	76.5	13.0	68.5
1985	3.2	3.3	3.0	11.0	5.9	2.1	14.9	13.2	10.9	35.7	11.1	8.6	10.2	3.2	77.3	13.1	68.3
1986[1]	3.2	3.2	2.9	10.8	5.9	1.8	15.0	12.8	10.3	37.1	10.9	8.3	10.9	3.2	80.7	13.2	68.6
1987[4]	3.3	3.3	2.8	12.5	6.0	1.7	14.6	12.6	10.0	38.2	11.1	8.0	10.9	3.3	83.1	12.8	69.3

[1] Preliminary. [2] Relates to farm production in Canada and the United States. Information for many countries is not explicit on this point. [3] Farm production, years ending May. [4] Forecast. *Source: Foreign Agricultural Service, U.S.D.A.* T.210

Salient Egg Statistics in the United States

Year	Hens & Pullets: On Farms Dec. 1[2] (Millions)	Hens & Pullets: Avg.[9] Number During Year (Millions)	Rate of Lay Per Layer During Year[3] Number	Eggs: Farm Prod. (Billions)	Eggs: Price Per Dozen	Eggs: Consumed[4] on Farms (Billions)	Eggs: Sold (Billions)	Gross Income[5] Billion $	Total Egg Prod.[6] (Million Dozen)	Imports[7] (Million Dozen)	Exports[8] and Shipments (Million Dozen)	Used for Hatching (Million Dozen)	Civilian Consumption: Total (Million Dozen)	Civilian Consumption: Per Capita Eggs
1980	294.1	287.7	242	69.7	56.3	.45	69.23	3.27	5,806	5	167	499	5,122	272.4
1981	293.8	287.8	243	69.8	63.1	.44	69.38	3.67	5,825	5	257	507	5,043	265.5
1982	289.6	286.4	243	69.7	59.5	.43	69.27	3.46	5,802	3	185	506	5,071	265.3
1983	278.5	276.3	247	68.2	61.1	.42	67.75	3.47	5,659	23	112	500	5,056	261.2
1984	285.8	278.0	245	68.2	72.3	.39	67.80	4.11	5,708	32	86	530	5,105	260.9
1985[1]	279.8	276.7	247	68.4	57.1	N.A.		3.25	5,688	13	101	548	5,032	254.7
1986[10]	280.1	278.0	247	68.6	61.6			3.52	5,715	15	130	566	5,016	251.4
1987[10]		280.0	248	69.6	62.5				5,800	6	120	600	5,022	250.0

[1] Preliminary. [2] Of laying age. [3] Number of eggs produced during the year divided by the average number of hens & pullets of laying age on hand during the year. [4] Consumed in households of farm producers. [5] Value of sales plus value of eggs consumed in households of producers. [6] Farm production, plus nonfarm output estimated at 1 percentage point less each year. [7] Shell-egg equivalent of eggs and egg products. [8] Shell eggs & shell equivalent of frozen & dried egg products. [9] Average number of layers on farms during the year. [10] Estimate. *Source: Agricultural Marketing Service, U.S.D.A.* T.211

Average Wholesale Prices of Shell Eggs (Large) Delivered, Chicago In Cents Per Dozen

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	59.9	56.3	60.6	56.8	50.8	54.6	63.2	65.9	68.8	64.3	75.7	77.3	62.8
1981	71.4	67.2	66.6	69.7	62.2	62.9	67.5	68.7	70.7	71.3	77.3	72.1	69.0
1982	76.2	74.2	75.2	68.3	60.4	60.8	61.7	61.6	65.9	66.8	66.2	64.1	66.8
1983	60.2	62.7	66.2	64.9	68.4	68.0	66.2	74.4	76.2	77.9	88.4	98.6	72.7
1984	112.3	102.6	88.3	101.8	74.3	68.1	69.0	66.5	67.2	60.7	70.4	62.2	78.6
1985[1]	58.4	55.1	62.3	57.3	52.9	60.8	58.6	66.4	70.5	70.7	74.6	73.2	63.4
1986[1]	70.6	65.7	76.9	62.6	62.0	57.3	69.4	70.0	69.4	66.3	74.1	72.8	68.1
1987[1]	64.4	62.0	59.2	59.0	51.8	55.6	55.4	58.7	64.8				

[1] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.212

Total Egg Production in the United States In Millions of Eggs

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total[2]
1980	6,047	5,595	5,956	5,715	5,798	5,582	5,708	5,753	5,725	5,948	5,795	6,054	69,686
1981	6,020	5,421	6,009	5,761	5,855	5,608	5,799	5,835	5,685	5,919	5,859	6,079	69,825
1982	5,958	5,333	17,557			17,231			17,419			6,030	69,718
1983	5,931	5,354	5,928	5,622	5,711	5,526	5,666	5,639	5,493	5,699	5,570	5,772	68,169
1984	5,685	5,326	5,796	5,643	5,742	5,525	5,750	5,766	5,622	5,856	5,747	6,040	68,230
1985	5,950	5,293	5,923	5,670	5,721	5,499	5,661	5,686	5,545	5,761	5,658	5,894	68,407
1986[1]	5,867	5,302	5,911	5,652	5,798	5,604	5,699	5,713	5,548	5,797	5,729	5,960	68,514
1987[1]	5,919	5,352	6,044	5,800	5,829	5,618	5,789	5,785	5,690	5,690			

[1] Preliminary. [2] Dec. 1 previous year thru Nov. 30. *Source: Crop Reporting Board, U.S.D.A.* T.219

Total Eggs—U.S. Supply and Distribution In Millions of Dozen

Year & Quarters	Supply				Utilization					
							Domestic Disappearance			
									Civilian[1]	
	Production	Imports[1]	Beginning Stocks[1]	Total Supply	Ending Stocks[1]	Exports & Shipments[1]	Eggs Used for Hatching	Military	Total	Per Capita (Number)
1982 I	1,444	.5	17.5	1,447	14.4	53.1	128.4	5.9	1,260	65.9
II	1,441	.3	14.4	1,437	18.2	36.9	132.4	4.8	1,263	65.9
III	1,436	1.6	18.2	1,434	22.3	37.6	120.4	6.4	1.270	66.1
IV	1,480	.1	22.3	1,483	20.3	57.3	124.5	5.3	1,296	67.3
1983 I	1,434	5.0	20.3	1,442	18.1	30.2	128.4	6.3	1,277	66.2
II	1,405	2.9	18.1	1,409	17.4	29.2	129.2	6.9	1,243	64.3
III	1,400	7.4	17.4	1,411	13.2	26.7	120.1	6.5	1,258	64.9
IV	1,420	8.2	13.2	1,432	9.3	26.4	122.4	5.4	1,278	65.8
1984 I	1,401	13.9	9.3	1,414	10.2	17.5	133.0	4.2	1,259	64.6
II	1,409	7.6	10.2	1,413	13.7	15.3	138.0	5.3	1,255	64.2
III	1,428	7.2	13.7	1,436	13.4	26.7	128.4	3.7	1,277	65.2
IV	1,470	3.4	13.4	1,476	11.1	26.5	130.2	4.4	1,315	66.9
1985 I	1,431	2.2	11.1	1,444	11.0	24.5	136.1	5.1	1,267	64.4
II	1,408	3.3	11.0	1,422	12.2	24.5	139.7	5.6	1,240	62.8
III	1,408	2.3	12.2	1,422	13.1	25.0	133.7	4.5	1,246	63.0
IV	1,443	4.9	13.1	1,461	10.7	27.0	138.6	5.0	1,279	64.5
1986[2] I	1,423	3.6	10.7	1,438	8.7	33.4	139.2	4.6	1,252	63.0
II	1,421	4.0	8.7	1,434	11.9	28.2	144.7	4.2	1,245	62.5
III	1,413	2.2	11.9	1,427	11.5	36.5	140.9	4.5	1,234	61.8
IV	1,457	3.9	11.5	1,473	10.4	31.5	141.1	4.2	1,285	64.2
1987[2] I	1,443	2.6	10.4	1,456	11.9	30.9	147.5	4.5	1,261	62.8
II	1,438	1.2	11.9	1,451	13.8	28.5	153.6	4.1	1,251	62.1
III	1,439		13.8		13.5		147.8	4.6		

[1] Shell eggs & the approx. shell-egg equivalent of egg product. [2] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.213

Shell Eggs: Civilian Per Capita Disappearance in the United States Number of Eggs

Year	Shell Equivalent													Pro-cessed[2]	Total
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total[1]		
1977	20.9	17.9	20.1	19.2	19.4	18.1	19.1	19.1	19.0	20.7	20.2	21.4	235	37	272
1978	21.1	18.6	20.8	20.0	20.3	18.8	19.7	19.8	19.7	20.9	20.7	21.9	242	36	278
1979	21.3	18.5	21.0	20.0	20.1	19.2	20.1	19.9	19.8	20.2	20.2	21.8	242	36	278
1980	21.1	19.0	20.9	19.4	19.8	18.7	19.0	19.6	19.4	19.8	20.0	20.7	237.3	35	272
1981	58.5			56.7			57.3			60.7			233.1	33	265
1982	58.6			57.0			56.5			59.1			231.2	34	265
1983	57.8			55.5			55.0			57.6			225.9	35	261
1984	55.7			54.8			55.2			57.7			223.4	38	261
1985	55.6			52.4			52.8			55.0			215.7	39	255
1986[3]	54.5			52.0			51.7			54.2			239.4	12	251
1987[3]	52.5			51.2											

[1] Monthly totals do not necessarily add to yearly figures due to rounding. [2] Liquid, frozen, & dried egg (egg solids) converted to shell egg equivalent. [3] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.214

Egg-Feed Ratio[1] in the United States

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1977	8.5	8.1	7.3	6.8	5.9	5.8	6.7	7.2	7.6	7.1	7.3	7.4	7.1
1978	6.7	7.5	7.4	6.7	6.3	5.6	6.4	7.0	7.3	7.0	7.5	8.0	7.0
1979	7.8	7.7	8.0	7.4	6.9	6.7	6.1	6.1	6.4	6.1	6.8	7.3	6.9
1980	6.6	6.0	6.4	6.0	5.4	5.6	5.7	6.0	6.2	5.7	6.0	6.6	6.0
1981	5.9	5.7	5.6	5.9	5.2	5.2	5.5	5.8	6.4	6.5	7.2	6.7	6.0
1982	6.6	6.8	7.1	6.6	5.6	5.3	5.7	5.4	6.0	6.3	6.3	6.0	6.2
1983	5.7	5.8	6.1	5.8	6.0	5.8	5.7	6.1	6.0	6.2	6.9	7.7	6.0
1984	8.8	8.5	7.4	8.6	6.5	5.8	5.8	5.8	5.9	5.7	6.5	6.3	6.8
1985	5.4	5.6	6.3	5.7	5.5	5.9	5.8	6.5	7.1	7.3	7.5	7.4	6.3
1986[2]	7.2	6.9	7.6	6.4	6.4	5.7	6.9	7.3	7.3	7.0	8.0	7.9	7.0
1987[2]	7.2	7.1	6.6	6.7	6.0	6.1	5.8	5.7	6.7	6.1			

[1] Pounds of laying feed equivalent in value to one dozen eggs. [2] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.215

EGGS

Hens and Pullets of Laying Age in the U.S., First of Month In Millions

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1980	296.0	293.1	288.7	285.3	280.8	279.5	279.9	282.2	287.9	291.7	292.8	294.1
1981	295.2	292.4	291.3	286.3	284.5	282.5	280.9	284.5	283.8	287.2	290.5	293.8
1982	291.7	290.1	288.4	—	—	282.7	—	—	281.9	—	—	289.6
1983	285.8	283.3	280.5	276.9	273.0	271.8	270.1	269.7	271.5	272.2	276.4	278.5
1984[1]	277.2	276.5	277.0	278.9	276.1	276.2	276.5	274.3	277.8	280.5	282.2	285.8
1985[1]	286.9	281.7	279.0	276.1	272.5	269.2	269.8	271.3	273.8	276.2	280.7	279.8
1986[1]	280.9	280.4	279.8	—	—	273.5	—	—	273.3	—	—	280.1
1987[1]	—	—	282.6	—	—	277.5	—	—	278.4	—	—	

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.216

Eggs Laid Per Hundred Layers in the United States In Number of Eggs

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	2,053	1,923	2,075	2,019	2,070	1,996	2,031	2,018	1,976	2,035	1,975	2,054	2,422
1981	2,049	1,857	2,081	2,018	2,065	1,991	2,051	2,053	1,991	2,049	2,005	2,083	2,426
1982	2,048	1,850		6,159			6,112			6,105		2,097	2,435
1983	2,084	1,899	2,127	2,045	2,096	2,039	2,099	2,084	2,021	2,078	2,008	2,078	2,468
1984	2,054	1,925	2,085	2,032	2,079	1,999	2,086	2,088	2,013	2,080	2,023	2,109	2,046
1985[1]	2,092	1,887	2,138	2,067	2,119	2,024	2,099	2,096	2,018	2,069	2,018	2,097	2,059
1986[1]	2,093	1,900	2,120	2,042	2,114	2,019	2,055	2,052	2,020	2,084	2,045	2,113	2,054
1987[1]	2,086	1,895	—	—	2,109	—							

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.221

Egg-Type Chicks Hatched by Commercial Hatcheries in the United States In Millions

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	38.1	42.1	46.5	47.9	47.6	42.3	37.9	38.0	37.4	37.3	33.8	35.8	484.6
1981	37.8	36.1	44.5	48.3	46.1	40.5	32.3	33.8	32.3	35.9	33.7	33.1	454.2
1982	36.7	36.4	44.2	46.6	47.3	39.4	35.4	33.5	31.2	32.3	30.2	31.1	444.4
1983	32.6	33.0	39.3	36.7	38.3	37.5	30.5	30.9	31.8	32.3	29.6	34.4	406.9
1984	36.9	37.5	45.7	47.9	49.0	46.5	38.4	34.8	33.1	31.4	30.1	27.1	458.5
1985	28.3	28.4	36.9	40.9	39.0	33.8	32.1	32.5	33.6	33.6	33.6	34.2	406.8
1986[1]	34.5	34.8	39.5	42.4	42.5	37.3	33.6	33.4	32.6	32.4	27.5	33.3	423.7
1987[1]	34.2	35.2	42.3	42.1	41.4	38.0	33.5	35.3	32.5	34.2			

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.220

U.S. Cold Storage Holdings of Shell Eggs, 1st of Month In Thousands of Cases (One Case = 30 Dozen)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	38	47	24	22	30	47	51	39	28	39	15	19
1981	31	28	18	31	31	25	41	39	20	19	21	38
1982	35	28	19	39	—	—	32	—	—	29	—	—
1983	34	35	25	18	23	32	44	24	25	25	45	18
1984	13	28	17	36	35	41	42	29	31	23	37	35
1985	31	30	29	23	26	30	21	30	20	22	23	28
1986[1]	24	28	21	20	32	44	38	25	33	29	20	29
1987[2]	22	20	25	32	28	38	32	34	32	33	51	40

[1] Preliminary. *Source: Crop Reporting, Board U.S.D.A.* T.217

U.S. Cold Storage Holdings of Frozen Eggs, 1st of Month In Millions of Pounds[1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.
1980	23.4	22.1	23.8	23.4	25.9	26.6	28.6	29.4	30.7	29.7	29.2	25.3
1981	24.3	24.3	24.2	22.3	21.9	22.7	24.2	26.9	27.2	25.5	25.6	23.7
1982	21.6	21.2	19.4	17.4	—	—	22.7	—	—	28.3	—	—
1983	25.4	25.5	25.7	23.1	22.5	21.2	21.1	20.4	19.0	16.4	14.2	13.4
1984	11.8	11.0	11.4	12.0	12.7	12.8	16.4	17.5	16.6	16.7	17.9	16.2
1985	13.4	14.9	13.9	13.5	13.2	14.4	15.3	18.0	18.4	16.4	15.1	13.8
1986[2]	13.2	12.7	12.8	10.7	12.5	11.6	14.2	15.1	15.0	14.0	14.0	13.0
1987[2]	12.8	14.3	13.5	14.5	14.9	17.4	17.0	17.3	17.5	16.5	17.9	17.5

[1] Converted on basis 39.5 pounds frozen eggs equals 1 case. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.218

Electric Power

Growth in electricity generation was expected to be more consistent with economic growth in 1987 than in 1986, when total generation increased less than 1 percent to 2.487 trillion kilowatt-hours (kwh). For 1987, the Department of Energy (DOE) estimated U.S. generation at 2.568 trillion kwh and forecast 1988 generation at 2.598 trillion. Net electricity imports, primarily of Canadian hydroelectric power, were estimated at 46.4 billion kwh in 1987 and 37.9 billion in 1988, bringing total supplies to 2.615 trillion kwh in 1987 and 2.636 trillion in 1988.

The start-up of eight nuclear units in 1987 and an expected two units in 1988 was forecast to produce 9 percent and 8 percent increases, respectively, in nuclear power generation. This would raise nuclear power's average capacity utilization rate to 60 percent in 1988. Coal capacity additions were expected to be small in 1987 and 1988, but increased demand was expected to boost capacity utilization to 52 percent in 1988. Coal-fired generation was projected to increase about 2 percent annually in 1987 and 1988, or an average of 30 billion kwh yearly. Hydroelectric generation fell in 1987 because of low water supplies in the West, and the impact of the 1987 drought was expected to keep hydroelectric generation in 1988 at a below-normal 272.4 billion kwh.

DOE expected oil- and gas-fired generation in 1988 to decline to about 14 percent of electricity generation, with gas about 70 percent of that. Fossil fuels are still being displaced by nuclear plants. But in 1987, ground was broken in Maine on North America's first peat-fired power plant. The 22,800-kw plant, to be completed by the end of 1988 at a cost of $51 million, will serve 15,000 customers.

Nuclear power developments continued to dominate the industry in 1987. In October, the Nuclear Regulatory Commission (NRC) voted 5-0 to consider granting operating licenses to nuclear plants where state and local officials hadn't cooperated in emergency planning. The NRC will give the utilities a chance to show that their emergency plans adequately protect people living near the plant. This ruling was expected to raise prospects for operating the Seabrook, N.H., and Shoreham, N.Y., plants. Their licenses have been blocked by the governors of their states. Shoreham was operating at a 5 percent low-power testing rate; and as 1987 ended, Seabrook was applying for a low-power operating license.

Meanwhile, the first atomic power station, which opened in 1957 in Shippingport, Pa., was being dismantled as part of a five-year, $98 million DOE demonstration project that began in September 1985. The contaminated waste is being carted to the federal waste disposal facility in Hanford, Wash. The spent uranium rods were disposed of at a military nuclear waste facility. When the project is completed in 1990, there should be no trace of the plant on the 7-acre site.

Lower fuel costs eased the average price/kwh from 7.80 cents in 1986 to an estimated 7.78 cents in 1987. The 1988 average was expected to range between 7.78 cents and 8.30 cents.

World Electricity Production In Billions of KWH

Year	Australia	Brazil	Canada	Czechoslov.	France	West Germany	Italy	Japan	Norway	Poland	Sweden	Switzerland	South Africa	United Kingdom	United States	USSR
1979	92.1	126.5	363.2	68.1	241.1	374.2	180.5	589.6	89.1	117.5	92.4	42.7	90.3	299.9	2,319	1,238
1980	96.3	139.5	377.5	72.6	243.3	368.8	185.7	577.5	84.1	121.9	93.4	46.6	95.0	284.9	2,354	1,295
1981	102.5	142.2	390.9	74.1	263.4	367.1	178.9	583.2	92.8	115.0	102.8	50.5	97.4	276.7	2,359	1,325
1982	104.9	152.0	387.5	74.7	265.4	365.2	181.8	581.1	92.6	117.6	99.5	51.2	119.9	271.3	2,302	1,367
1983	109.2	162.0	408.4	76.0	281.3	372.0	180.1	555.5	105.9	125.9	108.9	50.9	108.3	275.6	2,368	1,396
1984	115.8	178.5	438.0	78.3	307.2	392.9	179.5	580.4	106.1	135.3	123.3	48.1	121.6	280.4	2,472	1,493
1985[1]	121.6	192.9	460.4	80.6	326.4	406.7	182.2	598.1	103.2	137.7	136.5	53.9	121.5	294.7	2,525	1,544
1986[3]	127.0		435.0	85.5	340.0	406.8	189.6	557.1	97.1	140.3	133.1	54.4	145.4	301.0	2,545	1,599

[1] Preliminary. [2] Estimate. *Source: United Nations* T.222

Installed Capacity, Capability & Peak Load of the U.S. Electric Utility Industry In Millions of Kilowatts

Year	Installed Generating Capacity at Dec. 31											Capability at Winter Peak Load	Non-Coincident Winter Peak Load	Margin of Reserve (%)	Total Generation	Peak Load Factor (%)
		Type of Prime Mover				Type of Ownership										
	Total Electric Utility Industry	Hydro	Gas Turbine & Steam	Nuclear Power	Internal Combustion	Investor Owned	Cooperatives	Sub-Total Gov't.	Municipal Utilities	Federal	Power Districts, State Projects					
1979	598.4	75.4	463.0	54.6	5.5	464.1	13.8	120.5	34.5	58.3	27.6	554.3	368.9	36.9[2]	2,247	64.4
1980	613.7	76.4	475.3	56.5	5.6	477.1	15.4	121.2	34.6	59.1	27.5	572.2	384.6	23.5	2,293	61.1
1981	635.0	77.2	491.3	60.8	5.6	490.8	18.4	125.7	35.1	61.0	29.5	581.1	391.1	25.2	2,311	61.6
1982	650.1	78.1	503.8	63.0	5.1	499.1	21.5	129.5	35.8	62.5	31.2	596.9	373.3	29.2	2,241	62.1
1983	658.2	79.0	507.1	67.1	5.0	505.5	22.2	130.5	36.6	63.0	30.9	611.6	410.8	25.0	2,310	59.5
1984	672.5	80.6	516.5	70.5	4.8	514.9	24.7	132.9	36.7	63.3	32.8	622.1	436.4	25.3	2,416	59.7
1985	688.7	83.0	520.3	80.4	5.0	530.4	24.6	133.8	37.0	63.7	33.0	636.5	423.7	25.9	2,470	62.0
1986[1]	707.7	85.2	524.1	92.4	5.9	544.2	26.4	137.1	38.6	63.9	34.6	646.7	422.9	24.8	2,487	60.7

[1] Preliminary. [2] New series starting 1980. *Source: Federal Power Commission* T.223

ELECTRIC POWER

Available Electricity & Energy Sales in the United States In Billions of Kilowatt Hours

	Generation						Sales to Ultimate Customers									
	Electric Utility Industry															
Year	Hydro	Steam	Nuclear	Total[5]	Other Sources[2]	Total	Total Million $	Total[4]	Residential	Inter-Departmental	Commercial	Industrial	Street & Highway	Other Public Authorities	Railways & Railroads
1975	300.0	1,439	172.5	1,918	85	2,003	46,855	1,733	586.1	5.4	418.1	661.6	13.9	43.6	4.3
1976	283.7	1,558	191.1	2,038	87	2,125	53,463	1,850	613.1	6.4	440.6	725.2	14.4	45.6	4.3
1977	220.5	1,648	250.9	2,124	88	2,212	62,610	1,951	652.3	7.2	469.2	757.2	14.4	46.2	4.2
1978	280.4	1,645	276.4	2,206	79	2,300	69,853	2,018	679.2	7.1	480.7	782.1	14.8	49.5	4.3
1979	279.8	1,708	255.2	2,247	71	2,318	79,640	2,084	696.0	7.4	494.7	817.6	14.8	49.6	4.3
1980	276.0	1,756	251.1	2,283	68	2,351	95,462	2,126	734.4	6.4	524.1	793.8	14.8	48.3	4.3
1981	260.7	1,759	272.7	2,295	70	2,365	111,016	2,151	730.5	6.2	521.7	819.6	14.7	53.7	4.2
1982	309.2	1,647	282.8	2,238			121,584	2,100	732.7	5.4	517.0	770.4	14.2	55.7	4.3
1983	332.1	1,682	293.7	2,308			129,507	2,158	750.9	5.4	546.3	780.0	14.1	56.7	4.3
1984	321.2	1,766	327.6	2,415			142,281	2,286	780.7	5.8	583.8	836.1	14.1	61.0	4.5
1985[1]	281.1	1,803	383.7	2,470			149,162	2,306	792.9	5.3	605.9	820.3	14.6	62.2	4.7
1986[3]	290.8	1,781	414.0	2,487			152,814	2,355	820.8	5.2	630.3	817.4	14.9	62.0	4.7
1987[3]	270.0		450.0	2,545			148,000	2,365	822.0	5.0	630.0	820.0	15.0	60.0	4.8

[1] Preliminary. [2] Includes generation of industrial and railway electric plants. [3] Estimate. [4] Also includes interdepartmental (averages about 600 million kwh). [5] Includes internal combustion. *Sources: Federal Power Commission; Edison Electric Institute* T.224

Electric Power Production by Electric Utilities in the U.S. In Billions of Kilowatt Hours

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.	Total
1974	156.9	142.4	149.9	141.9	153.4	156.0	177.9	173.8	152.2	151.9	149.8	159.5	1,867
1975	164.3	147.1	155.5	146.2	153.2	162.4	176.8	179.7	155.2	154.9	152.8	169.4	1,918
1976	178.3	156.7	164.2	153.2	157.4	173.4	186.4	186.4	165.0	163.7	169.1	183.9	2,038
1977	196.4	162.7	169.1	156.9	169.3	180.8	198.9	196.1	176.2	166.4	167.1	184.2	2,124
1978	197.3	173.7	173.2	159.7	175.2	187.4	202.6	205.6	185.6	175.6	176.3	191.7	2,206
1979	209.7	186.3	182.8	170.0	178.1	186.7	202.3	204.9	180.8	179.7	177.5	188.7	2,247
1980	200.0	188.7	187.5	168.7	175.7	189.4	216.8	215.4	191.5	178.6	178.6	195.6	2,286
1981	206.5	179.6	185.6	172.5	177.8	202.7	220.4	210.4	186.8	181.4	175.6	195.6	2,295
1982	209.4	180.3	187.7	172.6	177.1	186.1	210.6	205.7	180.7	173.0	173.4	184.7	2,241
1983	195.6	172.5	182.5	170.4	174.4	191.0	220.2	230.0	195.6	182.9	182.9	212.3	2,310
1984	216.6	189.6	200.1	181.1	192.2	209.6	221.2	229.3	195.2	190.9	190.4	200.0	2,416
1985[1]	227.7	198.1	194.7	184.7	196.7	205.0	226.7	226.1	202.4	194.8	192.4	219.3	2,470
1986[1]	217.7	192.4	196.7	187.2	198.3	215.0	242.7	225.2	206.7	197.8	196.4	213.6	2,487
1987[1]	222.7	194.0	201.8	189.5	206.0	225.5	247.5						

[1] Preliminary. *Source: Federal Power Commission* T.225

Use of Fuels for Electric Generation in the United States

	Consumption of Fuel									
Year	Coal (Thousand Short Tons)	Fuel Oil (Thousand Barrels)[2]	Gas (Million Cubic Feet)	Total Fuel in Coal Equivalent (Thousand Short Tons)	Net Generation by Fuels[3] (Million Kw. Hr.)	Lbs. of Coal Per Kw. Hr. (Pounds)	% of Total Net Fuel Generation	Average Cost of Fuel Per Kw. Hr. (¢)	Heat Rate BTU Per Kw. Hr.	Cost Per Million BTU Consumed (¢)
1974	391,811	536,274	3,443,428	685,115	1,449,079	.946	95.6	.93	10,481	89.0
1975	406,032	506,081	3,157,669	686,236	1,441,611	.952		1.12	10,383	108.3
1976	448,431	555,583	3,080.627	740,112	1,558,951	.950		1.20	10,369	115.3
1977	477,215	623,656	3,190,571	798,425	1,648,775	.969		1.38	10,449	131.8
1978	481,624	635,839	3,188,370	811,814	1,646,163	.986		1.53	10,495	145.3
1979	527,051	523,297	3,490,523	837,371	1,708,029	.981		1.62	10,470	155.4
1980	569,274	420,214	3,681,595	916,952	1,753,749	.980		2.07	10,489	197.0
1981	596,797	351,111	3,640,154	922,133	1,755,401	.992		2.42	10,506	230.2
1982	593,666	249,771	3,225,518	858,869	1,644,062	.996		2.46	10,517	234.0
1983	625,211	245,497	2,910,767	861,621	1,678,021	.993		2.40	10,539	227.1
1984	664,399	204,479	3,111,342	909,156	1,758,882	.990		2.41	10,385	232.0
1985[1]	693,841	173,414	3,044,083	926,793	1,794,276	.990		2.27	10,429	217.7
1986[4]	685,056	230,482	2,602,370	907,720	1,770,925	.989		1.92	10,423	184.5
1987[4]	723,000	204,240	2,922,600							

[1] Preliminary. [2] 42-gallon barrels. [3] Excludes wood & waste fuels. [4] Estimate. *Source: Federal Power Commission* T.226

Fertilizer

The basic raw material for nitrogen fertilizer is ammonia, made from natural gas and nitrogen. Phosphoric acid, made from phosphate rock and sulfuric acid, is the major source of phosphorous. And potassium fertilizer comes from potassium chloride, more commonly called potash. Fertilizer chemicals based on nitrogen account for 53 percent of total U.S. fertilizer consumption; those based on phosphorous, 26 percent; and on potassium, 21 percent. Diammonium phosphate is the only major fertilizer chemical containing two nutrients: nitrogen and phosphorous.

The U.S. fertilizer supply outlook changed significantly during crop-year 1987. U.S. demand has slowly declined in recent years, as high participation in the USDA's acreage reduction program resulted in more land left fallow and a drop in fertilizer use. However, countering this decline has been a tremendous surge in fertilizer exports, due in part to reductions in inventories abroad and a weaker dollar.

Since 1980, the U.S. has seen over 40 percent of its ammonia plants close. Yet, U.S. production of ammonia during 1986/87 was 14.6 million short tons, almost equal to the year-earlier figure. U.S. nitrogen exports during 1987 were up 34 percent, with a flurry of orders for ammonium phosphate in the spring. U.S. imports, on the other hand, declined sharply, with the exception of those from Canada. Canada increased its share of total nitrogen imports to the U.S. from 36 percent in 1980 to 43 percent in 1987. With U.S. exports on the rise, nitrogen inventories in producers' hands fell during the year. By June 1987, ammonia inventories were down 32 percent from the year-earlier level.

The U.S. phosphate industry has also gone through some major structural changes during the 1980s, with fewer companies producing at higher capacities. Cumulative production increased by 1 percent in 1986/87. U.S. exports surged to 4.25 million tons, compared to 3.15 million the previous year. Producers' inventories of phosphate were drawn down to their lowest levels since 1974. With three major phosphate plants expected to close in 1988, the remaining plants should be able to produce at higher operating rates.

The U.S. potash industry continued to be phased out, as economically mined reserves fall. The U.S. had 14 mines in operation in 1980; in 1987, it had only eight, with one operating under bankruptcy. In 1980, these mines had a capacity of 2.8 million tons and operated at 90 percent of capacity. In 1986/87, the eight mines had a capacity of 1.8 million tonnes, but operated at only 66 percent. Accordingly, the U.S. has become increasingly dependent on Canadian potash. However, the Commerce Department ruled in early 1987 that some Canadian producers were dumping potash in the U.S., and Canadian producers have raised prices significantly, slowing exports to the U.S. for a while.

Overall, the fertilizer supply situation in the U.S. was expected to be tighter in 1988, due to higher exports and lower imports. USDA forecast that this could lead to a slight increase in fertilizer prices paid by farmers. This rise would follow a 14-percent drop in prices from 1981 to 1986.

World Production of Ammonia In Thousands of Short Tons of Contained Nitrogen

Year	Bulgaria	Canada	China	France	East Germany	West Germany	India	Italy	Japan	Mexico	Netherlands	Poland	Romania	United Kingdom	United States	USSR	Total
1979	.9	2.2	9.7	2.4	1.2	2.4	2.5	1.6	2.6	1.5	2.1	1.7	2.6	1.8	15.4	13.4	78.4
1980	.9	2.3	11.0	2.3	1.3	2.3	2.4	1.5	2.3	1.7	2.1	1.6	2.5	1.8	16.2	13.9	81.2
1981	1.1	2.4	13.4	2.5	1.3	2.2	3.5	1.3	2.0	2.0	2.0	1.5	2.6	2.0	15.7	14.2	84.8
1982	1.1	2.3	14.0	2.2	1.3	1.7	3.8	1.2	1.8	2.2	1.8	1.5	2.9	1.9	13.0	15.4	83.7
1983	1.2	3.2	15.2	2.2	1.3	1.9	3.9	1.2	1.7	2.1	1.9	1.6	3.0	1.9	11.3	17.1	87.6
1984	1.3	3.9	15.4	2.6	1.3	2.2	4.4	1.3	1.8	2.0	2.5	1.6	3.2	2.0	13.4	17.4	94.9
1985[1]	1.3	4.0	16.5	2.2	1.3	2.1	4.8	1.3	1.8	2.0	2.6	1.4	3.2	1.9	13.2	18.4	97.0
1986[2]	1.3	3.9	17.0	2.2	1.3	1.8	5.3	1.3	1.7	2.1	2.3	1.4	3.2	1.8	11.5	19.0	95.9

[1] Preliminary. [2] Estimate. *Source: Bureau of Mines* T.227

U.S. Salient Statistics of Nitrogen[1] (Ammonia) In Thousands of Short Tons

									Average Price ($ Per Short Ton)			
					Apparent Consumption				Urea			
Year	Net Import Reliance as a % of Appar. Con.	Production (Fixed)	Imports Fixed	Exports (Ammonia)	Fixed (Ammonia)	Elemental	Fixed	Producer Stocks (Year End)	F.O.B. Gulf[2] Coast	Deliv. Corn Belt	Ammonium Nitrate: Deliv. Corn Belt	Ammonia F.O.B. Gulf Coast
1979	7	15,420	1,603	647		14,386	16,565	1,752	145–150	165–170	118–120	128–132
1980	9	16,244	1,921	681			17,754	1,483	170–175	155–170	110–115	120–125
1981	5	15,732	1,719	506			16,467	1,960	130–135	170–180	138–150	132
1982	8	13,029	1,737	610			14,145	1,970	122–125	135–145	125–145	120
1983	18	11,297	2,169	298			13,719	1,422	135–140	160–167	135–145	175
1984	13	13,368	2,699	438			15,346	1,705	147–149	168–200	135–150	147
1985	8	13,238	2,306	1,010			14,439	1,800	82–95	110–137	112–133	108
1986[3]	17	11,499	2,048	531			13,305	1,500	75–78	90–110	100–120	75

[1] Elemental, Fixed, & Natural Nitrates. [2] Prilled. [3] Preliminary. *Source: Bureau of Mines* T.228

FERTILIZER

World Production of Phosphate Rock, Basic Slag & Guano In Ths. of Metric Tons (Gross Weight)

Year	Algeria	Brazil	China	Christmas Island	Israel	Jordan	Morocco	Nauru Island	Senegal	South Africa	Syria	Togo	Tunisia	United States	USSR	World Total
1979	1,084	1,628	8,517	1,367	2,086	2,825	20,032	1,828	1,835	3,221	1,272	2,920	4,154	51,611	24,400	131,825
1980	1,025	2,612	10,726	1,713	2,307	3,911	18,824	2,087	1,632	3,185	1,319	2,933	4,582	54,415	30,300	144,193
1981	916	3,238	11,500	1,423	1,919	4,244	18,562	1,480	1,699	2,718	1,321	2,215	4,596	53,624	30,700	143,001
1982	947	2,732	11,720	1,328	2,148	4,390	17,754	1,359	1,182	3,161	1,455	2,800	4,196	37,414	31,300	127,382
1983	893	3,208	12,500	1,094	2,969	4,749	20,106	1,684	1,521	2,887	1,229	2,081	5,924	42,573	31,600	139,388
1984	1,000	3,855	11,800	1,259	3,312	6,263	21,245	1,358	1,912	2,585	1,514	2,696	5,346	49,197	31,900	150,163
1985[1]	1,207	4,214	6,970	1,200	4,076	6,067	20,737	1,508	1,702	2,433	1,270	2,452	4,530	50,835	32,200	146,664
1986[2]	1,203	4,509	6,700	825	3,673	6,249	21,178	1,494	1,850	2,920	1,606	2,314	5,951	38,710	32,500	137,063

[1] Preliminary. [2] Estimate. *Source: Bureau of Mines*

T.229

U.S. Salient Statistics of Phosphate Rock In Thousands of Metric Tons

Year	Mine Production	Marketable Production	Value Mil. $	Imports for Consumption	Exports	Apparent Consumption	Stocks, Dec. 31 (Producer)	Price—$ Avg. Per Metric Ton (f.o.b. Mine)	Avg. Price of Fla. & No. Car $ Tonne—F.O.B. Mine (-60% to +74) Domestic	Export	Average
1979	185,757	51,611	1,046	886	14,358	39,591	14,500	20.26	18.91	24.60	20.57
1980	209,883	54,415	1,257	486	14,276	40,791	13,709	23.10	21.01	30.03	23.51
1981	183,733	53,624	1,438	13	10,395	35,144	19,619	26.82	25.17	33.74	27.68
1982	104,135	37,414	950	31	9,842	28,760	18,287	25.40	28.78	28.92	25.93
1983	125,691	42,573	1,021	9	12,010	34,838	14,500	23.98	22.64	25.70	23.48
1984	163,012	49,197	1,182	9	11,528	41,758	11,897	24.03	22.67	26.28	23.48
1985	175,227	50,835	1,236	34	10,284	37,532	15,534	24.31	23.08	26.72	23.81
1986[1]	134,045	38,710	878	528	9,176	33,260	12,658	22.67	21.64	25.02	22.31
1987[2]		38,000			10,000	35,000	11,000	22.50			

[1] Preliminary. [2] Estimate. *Source: Bureau of Mines*

T.230

U.S. Salient Statistics of Potash In Thousands of Metric Tons (K_2O Equivalent)

Year	Net Import as % of Consumption	Production	Sales by Producers	Value Mil. $	Imports for Consumption	Exports	Apparent Consumption	Producer Stocks Dec. 31	$ per ton: Avg. Value Per Ton of Product—$	$ per ton: Avg. Value of K_2O Equiv.	Average Price[2] $ Per Tonne
1979	66	2,225	2,388	279.2	5,165	635	6,918	251	61.38	116.92	95
1980	65	2,239	2,217	353.9	4,972	840	6,349	273	82.98	159.63	133
1981	65	2,156	1,908	328.9	4,796	491	6,213	520	89.62	172.40	137
1982	65	1,784	1,784	265.6	3,858	519	5,123	520	78.42	148.87	109
1983	75	1,429	1,513	220.8	4,440	300	5,653	391	74.85	145.97	100
1984	74	1,564	1,639	241.8	4,829	446	6 022	312	75.95	147.55	109
1985	76	1,296	1,266	178.4	4,593	513	5,346	336	71.22	140.89	96
1986[1]	78	1,202	1,147	152.0	4,212	547	4,843	378	66.35	132.53	92

[1] Preliminary. [2] Unit of K_2O, standard 60% muriate f.o.b. mine. *Source: Bureau of Mines*

T.232

World Production of Marketable Potash In Thousands of Metric Tons (K_2O Equivalent)

Year	Canada (sales)	Chile	China	Congo (Brazz.)	France	Germany East	Germany West	Israel	Italy	Jordan	Spain	USSR	United States	United Kingdom	World Total
1979	7,074	22	16	—	1,921	3,395	2,616	737	182	—	668	6,635	2,225	277	25,768
1980	7,532	25	12	—	1,894	3,422	2,737	797	156	—	658	8,064	2,239	321	27,857
1981	6,549	21	20	—	1,831	3,460	2,591	839	142	—	732	8,449	2,156	285	27,075
1982	5,309	22	26	--	1,704	3,434	2,056	1,004	146	9	692	8,079	1,784	245	24,510
1983	6,938	21	29	—	1,536	3,431	2,419	1,000	184	172	657	9,294	1,429	308	27,418
1984	7,527	18	40	—	1,739	3,465	2,645	1,100	163	295	677	9,776	1,564	325	29,334
1985[1]	6,661	21	40		1,750	3,465	2,583	1,100	205	561	659	10,367	1,296	343	29,051
1986[2]	6,969	20	40		1,617	3,450	2,165	1,255	158	660	702	9,600	1,202	400	28,248

[1] Preliminary. [2] Estimate. *Source: U.S. Bureau of Mines*

T.231

Flaxseed and Linseed Oil

World flaxseed production in 1987/88 was placed at 2.35 million tonnes, off 13 percent from a year earlier. In Canada, the largest producer, both harvested acreage and yields fell. The country's output of 750,000 tonnes was down 27 percent. Argentina harvested 600,000 tonnes, up 5 percent. India's crop of 400,000 tonnes was about the same as the previous year, and its yields remained low. The USSR's output was 230,000 tonnes. Soviet production is mainly for fiber. The U.S. crop of 170,000 tonnes was down 41 percent from the previous season; acreage was smaller, and yields were sharply lower.

World flaxseed demand had been declining for many years, as other fibers replace flax, and latex paints replace the need for linseed oil. Demand now appears to be stabilizing around current levels.

The world flaxseed crush in 1987/88 was estimated at 2.12 million tonnes, near a year earlier. Argentina is the leading crusher, with a large capacity processing system. Canada is the largest producer and exporter, but it has few crushing facilities. The U.S. imports Canadian flaxseed, processes it, and exports linseed oil back to Canada. World trade in flaxseed was put at 730,000 tonnes, down 4 percent from 1986/87. The European Community is a major flaxseed importer. Ending stocks of flaxseed were projected at 490,000 tonnes, 13 percent less than a year earlier.

Linseed oil production was put at 700,000 tonnes, the same as in 1986/87. Argentina, India, and the U.S. are the largest producers. World exports of linseed oil were estimated at 280,000 tonnes, up about 4 percent from a year earlier. Argentina is the largest exporter; the USSR is the leading importer. World linseed oil consumption was put at 650,000 tonnes, up 5 percent from the previous year. While most linseed oil is used as a drying agent in paints and varnishes, a small amount is processed further for food. Crop breeders are developing new varieties of flaxseed, which will be easier to process into oil for human consumption. Ending stocks of linseed oil were estimated at 40,000 tonnes, the same as a year earlier.

World linseed meal production in 1987/88 was put at 1.37 million tonnes, down slightly from the previous season. Argentina is the leading producer and exporter, with about 50 percent of the world market. World exports were put at 660,000 tonnes, just below 670,000 the year before. Major importers were Belgium and the Netherlands. Linseed meal consumption was expected to be down 2 percent from 1986/87.

World Production of Flaxseed In Thousands of Metric Tons

Crop Year	Argentina	Australia	Czechoslovakia	Canada	Bangladesh	Egypt	France	Hungary	India	Mexico	Poland	Romania	Turkey	Uruguay	United States	USSR	World Total
1980–1	610	7	15	44[illegible]	[illegible]	27	35	10	423	8	29	44	3	24	196	196	2,096
1981–2	600	7	12	468	[illegible]	18	18	11	483	12	24	38	2	14	185	165	2,086
1982–3	765	3	15	752	[illegible]	38	31	11	375	1	20	43	2	6	261	150	2,502
1983–4	660	4	15	444	8	16	22	11	444	4	19	23	2	9	175	259	2,140
1984–5	550	5	15	694	8	17	29	9	388	3	20	35	2	12	178	248	2,320
1985–6	484	10	15	920	8	17	40	9	450	3	20	24	2	12	211	230	2,370
1986–7[1]	570			1,030					400						290	230	2,710
1987–8[2]	600			790					400						170	230	2,390

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.233

U.S. Supply and Distribution of Flaxseed In Thousands of Bushels

Year Beginning June	Supply							Distribution				
	Stocks, June 1											
	Farm	Terminal	All Other	Total Stocks	Imports	Production	Total Supply	Seed	Crushing	Exports	Other[2]	Total Distribution
1977–8	1,070	—1,934—		2,961	859	14,280	18,100	557	11,615	1,001	−388	11,784
1978–9	2,890	—2,606—		5,315	1,557	8,614	15,486	724	13,009	91	−922	12,811
1979–0	977	—1,607—		2,584	1,916	12,014	16,514	650	12,425	174	−1,753	11,322
1980–1	2,681	—2,337—		5,018	2,510	7,728	15,256	547	11,927	76	−27	12,447
1981–2	1,136	—1,597—		2,733	3,502	7,289	13,524	691	11,231	11	−359	11,574
1982–3	1,175	— 775—		1,950	1,921	10,278	14,149	486	8,722	638	1,091	10,937
1983–4	1,956	—1,258—		3,212	4,756	6,903	14,871	438	12,733	52	−68	13,155
1984–5				1,716	3,796	7,022	12,534	511	9,935	238	201	10,885
1985–6				1,649	2,927	8,293	12,869	517	10,313	250	160	11,240
1986–7[1]				1,629	1,931	11,538	15,098	448	10,500	1,500	0	12,448
1987–8[3]				2,650	3,048	8,047	13,744	494	10,500	750	0	11,744

[1] Preliminary. [2] Other disappearance represents cleaning loss, waste, and residual. [3] Forecasts. *Source: Agricultural Statistics Board, U.S.D.A.*

FLAXSEED AND LINSEED OIL

Production of Flaxseed in the United States In Thousands of Bushels

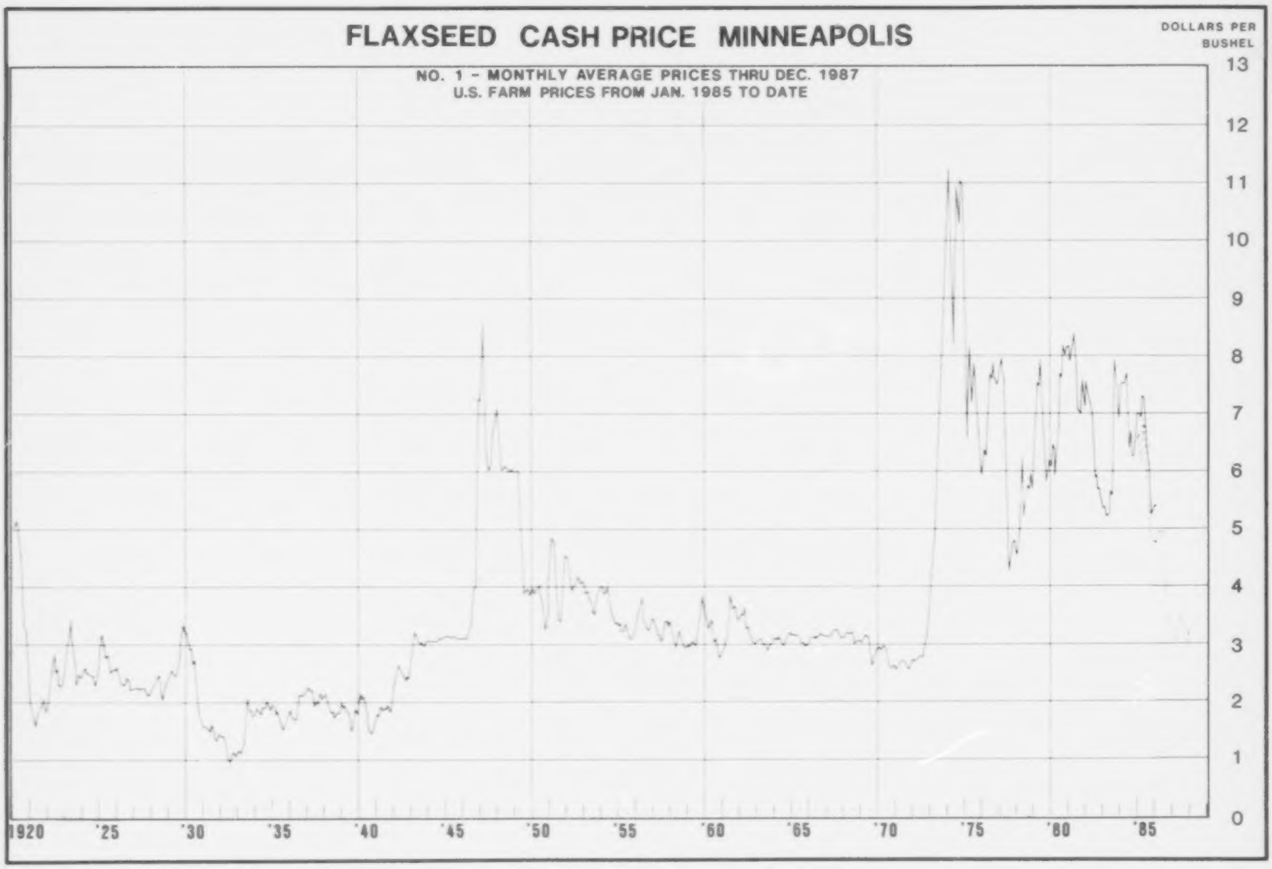
Year	Crop Production Estimates Aug. 1	Sept. 1	Oct. 1	Dec. 1	By States Minnesota	Montana	North Dakota	South Dakota	Texas	U.S. Total
1979	11,847	12,501	13,255	13,539	2,219	—	5,980	3,770	45	12,014
1980	7,060	7,700	7,940	8,128	1,563	—	2,900	3,445	20	7,728
1981	8,083	8,083	7,893	7,799	1,300	—	4,250	2,249	—	7,289
1982	10,940	11,485	11,730	11,635	1,650	—	5,873	2,755	—	10,278
1983	8,295	7,535	7,413	7,363	938	—	4,600	1,365	—	6,903
1984	7,260	7,555	7,555	7,022	653	—	4,875	1,494	—	7,022
1985	8,220	8,513	8,512	8,293	950	—	6,008	1,335	—	8,293
1986[1]	—	—	—	8,700	544		9,538	1,456	—	11,538

[1] Preliminary, December estimate. *Source: Agricultural Board, U.S.D.A.* T.234

Average Price Received by Farmers for Flaxseed in the U.S. In Cents Per Bushel

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average[1]
1980–1	655	702	717	710	723	759	754	748	725	735	765	747	720
1981–2	723	708	644	621	664	684	690	691	680	669	660	665	667
1982–3	625	535	537	511	495	468	486	470	460	454	469	492	517
1983–4	496	594	714	700	692	655	686	701	710	708	720	691	684
1984–5	625	607	572	567	586	605	659	664	618	667	694	654	609
1985–6	610	572	539	501	480	478	477	493	495	488	487	495	505
1986–7	439	380	369	345	339	333	318	313	304	315	334	343	344
1987–8	347	334	315	307	303	321							

[1] Season average includes an allowance for unredeemed loans. *Source: Agricultural Statistics Board, U.S.D.A.* T.236



Supply and Distribution of Linseed Oil in the U.S. & World Production & Price In Millions of Pounds

	Supply				Domestic Disappearance: Drying Oil Products							Production[3] in 1,000 tonnes				
Year Beginning June	Stocks June 1	Production	Total	Exports & Shipments	Paint & Varnish	Linoleum & Oilcloth	Resins & Plastics	Other Inedible	Total	Lubricants & Similar Oils	Total	Total World	Argentina	India	U.S.	Price Rotterdam Ex-Tank $ Tonne
1982–3	50	182	232	21	50.1		20.4				98	650	221	108	82	456
1983–4	35	265	300	51	56.5		27.7				121	670	206	128	120	556
1984–5	48	194	242	15	113.5		26.3				166	640	170	146	88	639
1985–6	33	205	238	15	131.0		29.7				177	600	145	130	96	475
1986–7[1]	39	221	260	20							200	660				319
1987–8[2]	40	220	260	25							195	650				329

[1] Preliminary. [2] Estimate. [3] Oil production calculated from assumed extraction rates. *Source: Economic Research Service, U.S.D.A.* T.239

U.S. Linseed Oil Consumption in Refining In Millions of Pounds

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1982–3	8.7	8.3	8.4	7.6	6.1	5.0	6.0	6.3	7.1	7.0	7.6	8.9	87.0
1983–4	11.7	11.9	12.4	16.5	10.6	10.0	13.5	12.6	21.8	8.0	N.A.	N.A.	129.0
1984–5	N.A.	N.A.	16.1	15.6	N.A.	N.A.	12.3	N.A.	N.A.	15.0	19.2	N.A.	78.2
1985–6	16.0	9.9	15.3	14.3	12.2	9.2	9.4	N.A.	13.6	14.7	12.3	15.1	142.0
1986–7[1]	14.0	13.8	15.8	15.1	N.A.	12.1	10.7	11.8	13.9	11.6	12.7	15.8	147.3
1987–8[1]	15.0	14.5	15.6										

[1] Preliminary. *Source: Bureau of the Census* T.242

Factory Shipments of Paints, Varnish and Lacquer in the U.S. In Millions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	486.9	509.1	616.1	633.4	664.3	736.0	631.6	671.5	653.8	545.2	479.8	419.7	7,047
1983	495.2	522.7	661.2	681.9	733.9	814.2	697.6	760.2	719.5	662.2	585.0	510.2	7,844
1984	628.7	676.7	764.2	758.2	843.4	844.0	789.4	838.1	749.7	771.0	638.5	571.3	8,818
1985[1]	669.5	661.2	806.2	925.5	996.0	942.9	925.5	855.2	797.0	811.0	665.4	564.1	9,279
1986[1]	717.4	698.4	766.2	920.5	916.1	900.0	871.0	860.8	836.7	857.9	656.0	610.4	9,494
1987[1]	704.0	762.3	857.5	911.3	924.2	940.9	914.1	898.5	887.7	887.4			

[1] Preliminary. *Source: Bureau of the Census* T.246

Wholesale Price of Raw Linseed Oil at Minneapolis in Tank Cars In Cents Per Pound

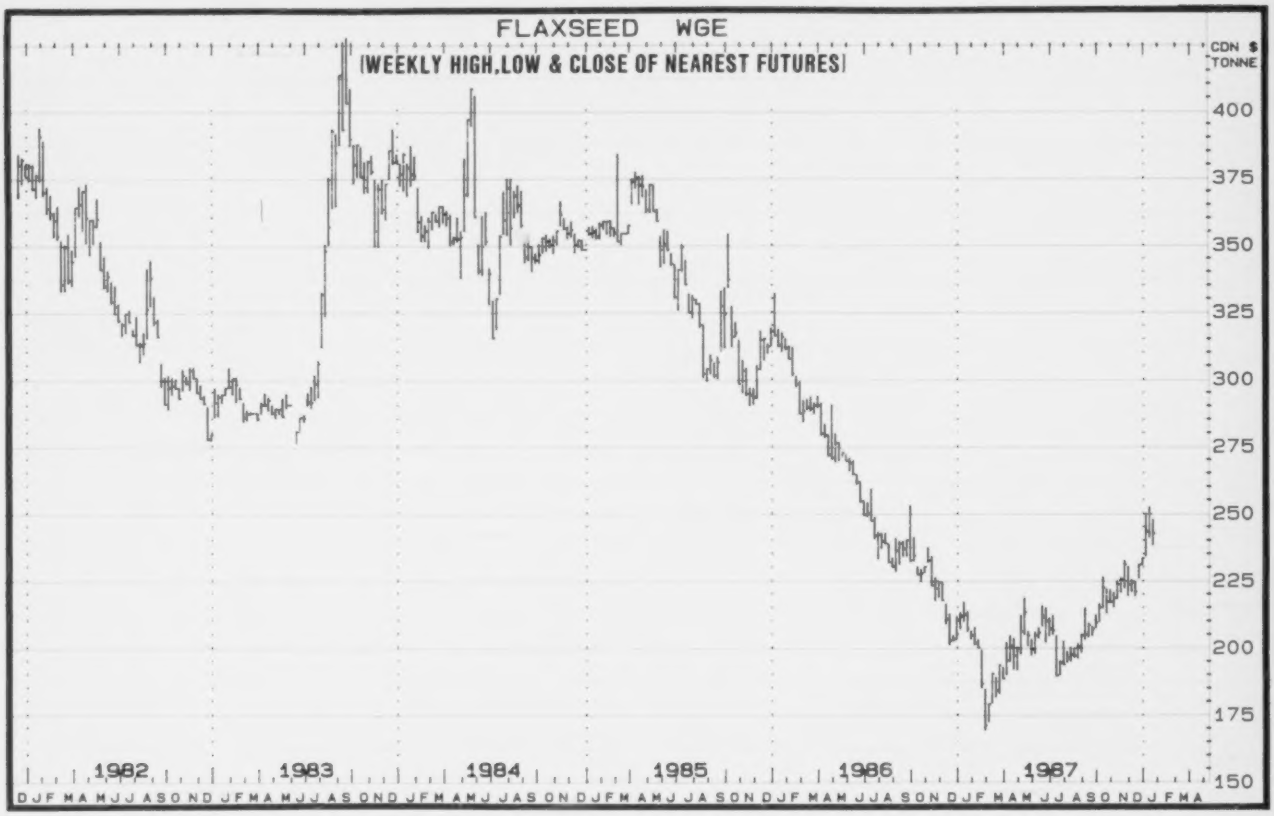
Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
1982–3	27.8	26.3	26.0	24.6	25.0	25.2	24.6	25.0	24.3	23.6	23.0	23.0	24.9
1983–4	22.8	25.5	31.6	34.0	31.5	32.0	32.0	32.0	31.8	32.0	33.0	34.5	31.1
1984–5	33.4	38.0	31.0	28.8	28.5	30.0	31.2	32.0	N.A.	N.A.	N.A.	N.A.	31.6
1985–6	34.6	33.3	33.0	30.0	30.0	27.6	30.0	30.0	30.0	30.0	30.0	29.4	30.7
1986–7	29.0	29.0	29.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	26.0
1987–8	25.0	25.0	25.0										

Source: Department of Agriculture T.240

U.S. Stocks of Linseed Oil (Crude & Refined) at Factories & Warehouses In Millions of Pounds

Year	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	April 1	May 1	June 1
1982–3	37.4	33.9	30.5	44.6	43.0	26.8	39.0	34.1	41.8	41.6	27.1	35.1
1983–4	54.7	46.5	41.7	50.4	46.0	34.9	34.1	38.0	40.3	41.5	55.2	47.6
1984–5	50.7	40.8	24.9	48.3	41.3	36.1	39.3	38.3	34.1	30.1	35.1	33.4
1985–6	32.7	36.9	25.4	47.0	62.3	55.2	60.6	62.7	64.6	66.0	56.1	40.1
1986–7[1]	46.0	45.3	40.4	40.0	50.3	68.0	60.0	68.0	60.0	64.6	55.0	51.1
1987–8[1]	52.2	45.9	40.2	52.1	54.3	49.2						

[1] Preliminary. *Source: Bureau of the Census* T.245



High, Low & Closing Prices of May Flaxseed Futures in Winnipeg In Canadian Dollars per Tonne

Year of Delivery		Year Prior to Delivery							Delivery Year					Life of Delivery Range
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1985	High	385.0	394.0	402.5	382.5	380.5	384.5	377.5	363.7	366.8	366.0	377.0	372.2	402.5
	Low	365.0	356.0	380.6	372.0	371.5	371.3	361.0	358.8	361.0	357.0	365.0	344.0	344.0
	Close	376.5	385.6	389.0	375.5	371.8	376.0	361.0	362.0	362.5	365.5	366.0	347.8	—
1986	High	375.0	373.1	353.9	340.0	349.0	313.0	333.0	334.0	319.3	300.5	293.5	282.0	378.5
	Low	374.2	350.3	318.2	318.0	316.0	303.5	309.1	317.0	295.3	290.3	270.1	269.0	269.0
	Close	366.0	350.3	324.4	328.5	317.5	308.5	325.0	318.0	295.5	293.5	290.4	269.5	—
1987	High	—	280.0	262.8	265.2	258.7	250.4	239.2	222.5	213.0	195.5	204.5	218.7	280.0
	Low	—	268.0	248.0	247.5	242.1	231.5	212.8	208.6	174.5	177.5	188.5	196.7	174.5
	Close	—	268.0	248.0	260.5	245.0	238.7	217.8	209.7	176.1	188.6	198.5	199.2	—
1988	High	237.6	235.0	218.8	230.2	244.2	246.0	242.5						
	Low	231.0	214.0	214.0	217.6	227.3	228.8	231.0						
	Close	234.0	217.0	218.0	228.0	230.8	242.5	239.6						

Source: Winnipeg Commodity Exchange T.243

Month–End Open Interest of Flaxseed Futures in Winnipeg In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1983	4,759	5,261	4,128	5,039	4,552	3,697	3,321	2,520	3,953	3,345	6,282	6,091
1984	6,509	6,964	5,100	5,944	4,509	3,943	5,140	6,164	5,853	4,490	5,618	5,162
1985	5,408	5,927	6,281	5,783	6,321	5,848	5,016	5,913	5,815	4,315	4,186	4,024
1986	5,037	5,600	5,204	6,586	6,137	6,487	5,561	6,626	7,147	3,955	5,618	4,247
1987	3,956	3,546	4,599	7,088	7,161	6,304	6,607	6,747	8,276	5,690	5,792	5,089

Source: Winnipeg Commodity Exchange T.244

Gas

U.S. demand for natural gas was estimated at just under 16 trillion cubic feet in 1987, reflecting unusually low consumption during first quarter 1987, according to the Department of Energy. Usage was expected to climb to 16.5 trillion cubic feet in 1988. Residential gas use fell 3 percent from the first quarter of 1986 to the first quarter of 1987, but a return to normal weather and continued growth in the number of natural gas customers was expected to boost demand by 4 percent in 1988. Although natural gas and heating oil prices in the home heating market are about the same, in terms of BTUs, most new construction within reach of gas lines opts for gas, and many oil-heated homes are converting. There are virtually no home-heating consumers who convert from gas to oil.

Many industrial users can convert at will from oil to gas and back again, maintaining equipment to handle either fuel on line. Natural gas prices to electric utilities and industrial users fell by 32 percent and 24 percent, respectively, in 1986. Regulators allow gas utilities to match lower oil prices to keep industrial business. Residential prices fell only 5 percent in 1986. But in 1987, while industrial prices bottomed out with oil prices, residential prices continued to decline. For 1988, higher wellhead prices, in response to somewhat higher oil prices, were expected to raise natural gas prices by less than 2 percent.

Spot gas sales now account for approximately 40 percent of the interstate market, and reserves dedicated to interstate pipeline contracts have fallen to their lowest level in 20 years, reflecting customer reluctance about the take-or-pay contracts used during the 1977-1982 natural gas shortage. These contracts call for prices far in excess of current spot market prices, and the Federal Energy Regulatory Commission (FERC) is considering possible forms of relief for pipelines where customers are refusing higher-priced gas. FERC established a plan, effective January 1988, under which producers must offer pipelines credit on take-or-pay contracts, if they want the pipelines to transport gas for other buyers.

World Natural Gas Production (Marketed Production[3]) In Thousands of Terajoule[4]

Year	Argentina	Canada	China	France	Indonesia	West Germany	Iran	Italy	Mexico	Netherlands	Poland	Romania	United Kingdom	United States	USSR	Venezuela	Australia
1976	268	2,820		279	115	676	788	600	515	3,422	243	1,384	1,491	20,552	11,194	497	231
1977	271	2,962		299	162	673	743	524	538	3,067	249	1,465	1,536	18,921	12,102	510	264
1978	256	2,856	535	307	353	720	668	524	701	3,048	244	1,475	1,458	18,846	12,967	528	274
1979	303	3,041	566	303	482	729	700	581	832	3,100	224	1,409	1,470	19,415	14,160	601	303
1980	327	2,790	558	289	607	632	279	476	1,036	3,012	193	1,455	1,379	19,256	15,168	643	351
1981	340	2,748	496	277	653	673	247	533	1,033	2,975	187	1,532	1,374	19,057	16,215	647	406
1982	393	2,825	464	257	646	580	257	583	1,[illegible]75	2,533	167	1,640	1,483	17,655	17,414	682	432
1983	457	2,740	475	260	773	635	326	493	1,040	2,691	193	1,537	1,527	15,986	18,628	668	443
1984	478	2,969	478	247	940	570	327	522	1,165	2,270	190	1,526	1,494	17,341	20,319	741	470
1985[1]	510	3,189	502	211	959	617	324	537	891	2,388	200	1,522	1,665	16,380	22,257	724	502
1986[2]	557	2,970	547	159		584		608	950		183		1,604	15,860	23,746	923	550

[1] Preliminary. [2] Estimate. [3] Comprises all gas collected & utilized as fuel or as a chemical industry raw material, including gas used in oilfields and/or gasfields as a fuel by producers. [4] Terajoule = 10^{12} Joule = approx. 10^9 BTU. *Source: United Nations* T.247

United States Recoverable Reserves and Deliveries of Natural Gas In Billions of Cubic Feet

Year	Recoverable Reserves of Natural Gas Dec. 31[3]	Deliveries									
		Residential	Commercial	Lease & Plant Fuel	Carbon Black	Petroleum Refineries	Used as Pipeline Fuel	Industrial	Other Consumers	Total Deliveries	Electric Utility Plants[2]
1975	228,200	4,924	2,508	1,396	26	946	583	6,968		17,558	3,158
1976	216,026	5,051	2,668	1,634	28	919	548	6,964	285	17,764	3,081
1977	208,878	4,821	2,501	1,659	28		533	6,815	257	17,329	3,191
1978	200,302	4,903	2,601	1,648			530	6,757	291	17,449	3,188
1979	200,987	4,965	2,786	1,499			601	6,899	301	18,141	3,491
1980	199,021	4,752	2,611	1,026			635	7,172		18,216	3,682
1981	201,730	4,546	2,520	928			642	7,128		17,834	3,640
1982	201,512	4,633	2,606	1,109			596	5,831		16,295	3,226
1983	200,247	4,381	2,433	978			490	5,643		15,367	2,911
1984	197,463	4,555	2,524	1,077			529	6,154		16,345	3,111
1985[1]		4,433	2,432	966			504	5,901		15,811	3,044
1986		4,314	2,318	923			485	5,579		14,814	2,602
1987[4]		4,244	2,254	930			493	4,905		14,330	2,925

[1] Preliminary. [2] Figures include gas other than natural (impossible to segregate); therefore, shown separately from other consumption. [3] Estimated proved recoverable reserves. [4] Estimated. *Source: U.S. Dept. of Energy* T.251

GAS

Gas Utility Sales in the United States by Types & Class of Service In Trillions of BTU's[3]

			Class of Service					Revenue—Mil. $					
Year	Total Utility Sales	No. of Cust. (Mil.)	Residential	Commercial	Industrial	Electric Generation	Other	Total	Residential	Commercial	Industrial	Electric Generation	Other
1974	160,003	44.7	48,648	22,934	81,532		6,890	15,242	6,899	2,539	5,391		413
1975	148,629	44.8	49,910	23,868	68,371		6,480	19,101	8,445	3,303	6,745		608
1976	148,135	45.1	50,142	24,266	71,070		2,696	23,701	9,941	4,075	9,435		250
1977	143,409	45.7	49,463	24,094	67,107		2,746	28,303	11,541	4,980	11,455		328
1978	147,480	46.0	51,070	25,000	68,410		3,010	32,150	12,939	5,696	13,139		377
1979	154,400	46.7	50,830	24,860	75,550		3,160	38,947	14,833	6,624	17,045		446
1980[3]	15,413	47.4	4,826	2,453	7,957		177	48,303	17,432	8,183	22,215		473
1981	15,375	48.1	4,610	2,375	8,239		150	56,110	19,180	9,286	27,124		520
1982	14,183	48.5	4,770	2,471	6,794		147	63,200	23,700	11,666	27,200		634
1983	12,859	48.9	4,450	2,298	5,970		140	65,837	26,173	12,659	26,315		690
1984	13,162	49.5	4,628	2,396	5,991		146	67,496	27,485	13,265	26,093		713
1985	12,612	50.2	4,513	2,338	3,686	1,949	130	63,293	26,864	12,723	15,659	7,428	620
1986[1]	10,815	51.0	4,416	2,240	2,689	1,340	130	51,194	24,750	11,268	10,554	3,949	673
1987[2]	11,000	52.0	3,184	1,691	2,192	1,300	140	52,500	29,000	12,200	8,000	3,600	750

[1] Preliminary. [2] Estimate. [3] Data prior to 1980 are in millions of therms. *Source: American Gas Association* T.253

Salient Statistics of Natural Gas in the United States

	In Billions of Cubic Feet										Avg. Value Delivered to Consumers—$ Per Ths. Cu. Ft.					
	Supply				Disposition											
Year	Marketed Production	Storage Withdrawals	Import (Consumed)	Total Supply	Consumption	Exports	Stored	Extraction Loss	Unaccounted For	Total Disposition	Wellhead Price	Imports	Residential	Commercial	Industrial	Electric Utilities
1974	21,601	1,701	959	24,260	21,223	77	1,784	887	289	23,373	.30	N.A.	1.43	1.07	.67	.71
1975	20,109	1,760	953	22,821	19,538	73	2,104	872	235	21,949	.45	N.A.	1.71	1.35	.96	.77
1976	19,952	1,921	963	21,983	19,946	65	1,756	854	216	22,837	.58	N.A.	1.98	1.64	1.24	1.06
1977	20,025	1,750	1,011	21,924	19,521	56	2,307	863	41	22,786	.79	N.A.	2.35	2.04	1.50	1.32
1978	19,974	2,158	966	22,245	19,627	53	2,278	852	287	23,097	.91	2.21	2.56	2.23	1.70	1.48
1979	20,471	2,047	1,253	22,964	20,241	56	2,295	808	372	23,772	1.18	2.60	2.98	2.73	1.99	1.81
1980	20,180	1,972	985	22,515	19,877	49	1,949	777	640	23,292	1.59	4.42	3.68	3.39	2.56	2.27
1981	19,956	1,930	904	22,191	19,404	59	2,228	775	501	22,967	1.98	4.84	4.29	4.00	3.14	2.89
1982	18,520	2,165	933	21,000	18,001	52	2,472	762	475	21,762	2.46	4.94	5.17	4.82	3.87	3.48
1983	16,822	2,270	920	19,354	16,835	55	1,822	790	642	20,144	2.59	4.51	6.06	5.59	4.18	3.58
1984	18,230	2,098	843	20,443	17,951	55	2,295	838	143	20,443	2.66	4.08	6.12	5.55	4.22	3.70
1985	17,198	2,397	949	19,855	17,281	57	2,163	816	354	19,855	2.51	3.18	6.12	5.50	3.95	3.55
1986[1]	16,791	1,837	750	18,692	16,221	61	1,984	800	427	18,692	1.94	2.51	5.83	5.08	3.23	2.43
1987[2]	17,000	2,000	800	19,000	16,000	60	1,850	820	1,200	19,200	1.80	2.27	6.00	4.80	2.65	2.34

[1] Preliminary. [2] Estimate. [3] Total value of market production at the wellhead. *Source: U.S. Dept. of Energy* T.248

United States Marketed Production[1] of Natural Gas In Billions of Cubic Feet

Year	Arkansas	California	Kansas	Alaska	Louisiana	Mississippi	Montana	New Mexico	Ohio	Oklahoma	Pennsylvania	Texas	West Virginia	Wyoming	Michigan
1973	158	449	893	131	8,242	100	56	1,219	94	1,771	79	8,514	209	358	
1974	124	365	887	129	7,754	79	55	1,245	92	1,639	83	8,171	202	327	
1975	116	318	844	160	7,091	70	41	1,217	85	1,605	85	7,486	154	316	102
1976	110	354	829	166	7,007	71	43	1,231	89	1,727	89	7,192	153	329	119
1977	104	311	781	188	7,215	83	47	1,203	99	1,770	92	7,051	153	330	130
1978	107	311	854	203	7,476	107	47	1,174	114	1,774	98	6,548	149	357	148
1979	109	248	798	221	7,266	144	54	1,181	123	1,835	96	7,175	151	414	160
1980	112	310	735	231	6,639	175	52	1,150	139	1,892	97	7,116	157	410	158
1981	93	381	640	243	6,780	181	59	1,134	141	2,019	122	6,910	151	425	153
1982	125	384	430	264	6,172	167	57	991	138	1,934	121	6,469	151	425	153
1983[2]	128	415	435	277	5,332	151	52	895	151	1,730	118	5,939	130	444	139

[1] Comprises gas either sold or consumed by producers, including losses in transmission, quantities added to storage and increases of gas in pipelines. [2] Preliminary. *Source: U.S. Dept. of Energy* T.250

Gasoline

The 65-mph speed limit on rural interstate highways, an increase in vacation driving, and more cars on the highways contributed to a steady gain in U.S. gasoline demand during 1987. Through the first 11 months of 1987, gasoline demand averaged 7.166 million barrels per day (bpd), in line with the Department of Energy's (DOE) 1987 forecast of 7.16 million bpd. Vehicle miles traveled increased almost 4 percent in the first half of 1987 and were expected to increase 3 percent for the entire year. A 2-percent gain was projected for 1988, countering the 2-percent improvement in fleet efficiency expected in 1987. A significant part of that improvement in average miles per gallon came from new cars bought in December 1986 to take advantage of the end of state sales tax deduction on Federal returns. Therefore, part of the improvement early in 1987 was at the expense of later gains. DOE was expecting passenger car efficiency to increase by less than 2 percent in 1988.

U.S. gasoline production averaged 6.811 million bpd during the first 11 months of 1987. Imports averaged 365,000 bpd. In September 1987, unleaded gasoline accounted for 77 percent of supplies, up from 70 percent in September 1986. Total ending inventories for November 1987 were 226 million barrels.

Retail prices reflected the impact of world oil price gyrations in 1987. The average price rose from 86.8 cents a gallon for January to a high of 100.4 cents in August, as tensions in the Middle East and a good summer driving season enabled refiners to pass higher costs on to retailers, according to DOE data. The overall average retail price, including taxes, all grades, and all types of service, was 99.39 cents a gallon on December 18, according to the final Lundberg Survey for 1987. At self-service pumps, prices averaged from 86.92 cents for regular unleaded to 90.83 cents for unleaded regular and to 105.61 cents for premium unleaded. Prices at full-service stations averaged 115.56 cents, 119.44 cents, and 129.64 cents, respectively. Lundberg said that unleaded regular accounted for 48 percent of the market.

Generally, according to DOE, prices at the pump tend to lag increases in crude oil costs by 3 to 6 months. However, in the summer of 1987, surveys conducted by the American Automobile Association, the Lundberg Survey, and *The Oil and Gas Journal* all showed rapid price increases in June and July, during the height of Persian Gulf tensions and the end of June's OPEC meeting. The December OPEC meeting, in which no significant actions to control overproduction were taken, alleviated concerns about tightening supplies in 1988.

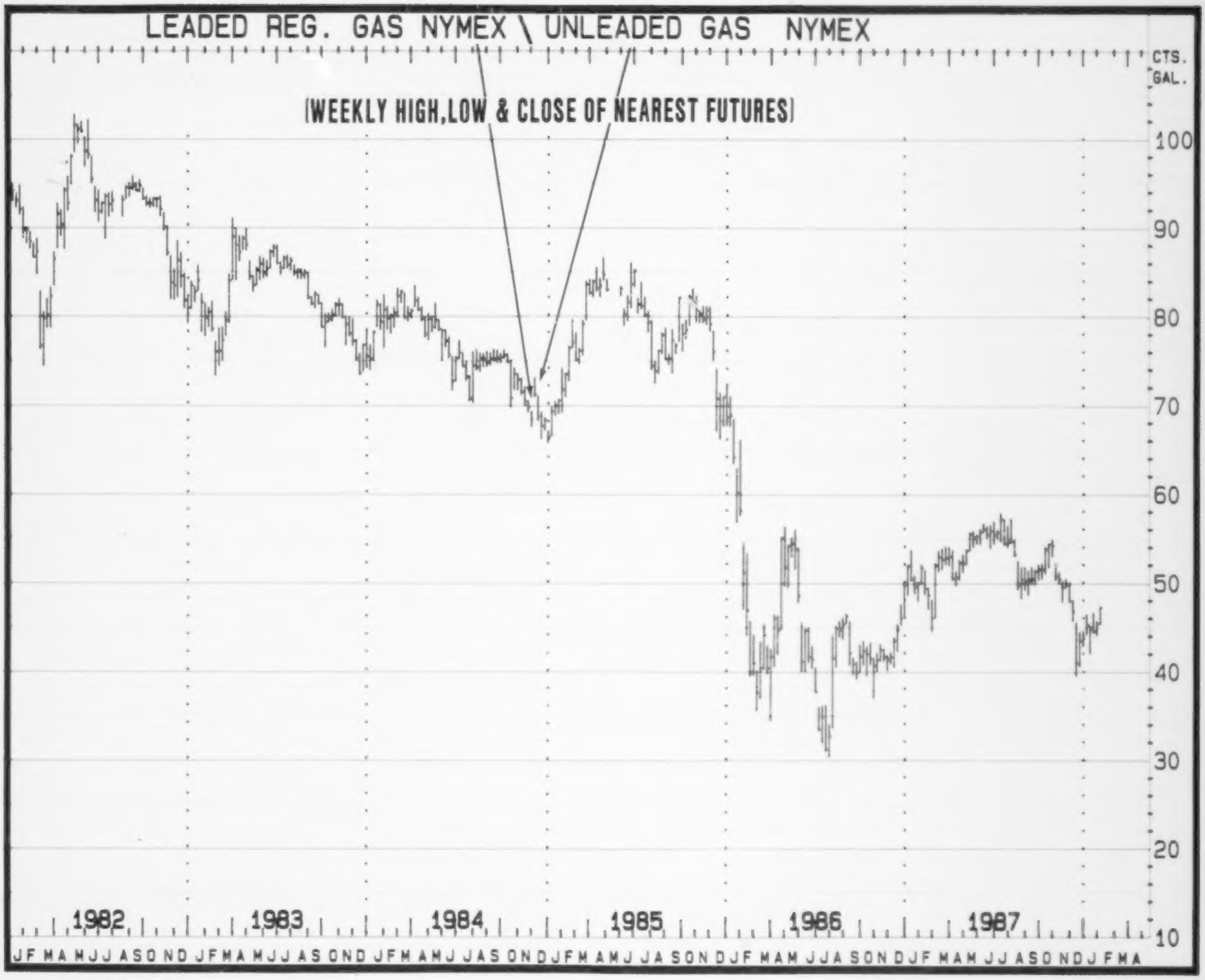
Futures Markets

Unleaded regular gasoline is traded on the New York Mercantile Exchange.

High, Low & Closing Prices of December Unleaded Regular Gasoline Futures In N.Y. In ¢ Per Gallon

Year of Delivery		Yr. Prior to Delivery			Delivery Year[1]											Life of Delivery Range
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.[1]	
1985	High	—	—	—	—	—	77.00	78.00	72.45	71.60	71.65	72.65	75.10	80.50	81.00	81.00
	Low	—	—	—	—	—	72.75	72.00	70.75	67.65	69.45	70.00	68.70	73.80	78.25	67.65
	Close	—	—	—	—	—	77.00	72.00	71.25	70.90	70.70	71.60	74.50	80.20	79.00	—
1986	High	—	—	—	61.00	52.50	43.50	40.65	42.60	39.60	35.30	43.55	46.40	43.90	43.00	61.00
	Low	—	—	—	55.10	40.80	34.00	34.56	36.50	36.00	30.32	31.00	34.55	37.70	40.00	30.20
	Close	—	—	—	55.10	41.75	34.00	36.08	38.25	36.00	31.30	43.18	40.24	41.53	41.28	—
1987	High	—	—	51.00	51.25	50.75	50.40	50.80	51.50	54.00	56.25	55.92	50.90	53.50	52.15	56.25
	Low	—	—	49.25	48.65	45.90	46.70	47.70	49.30	51.00	52.86	47.10	48.10	50.10	47.85	45.90
	Close	—	—	51.00	51.00	45.90	50.25	49.30	51.30	53.55	53.92	49.80	50.46	52.46	49.31	—
1988	High	—	—	—												
	Low	—	—	—												
	Close	—	—	—												

[1] Contract expires the last business day of the previous calendar month quoted. *Source: N.Y. Mercantile Exchange* T.0575A



Month-End Open Interest of Unleaded Regular Gasoline Futures In New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	FUTURES TRADING BEGAN DEC. 3, 1984											1,243
1985	2,429	1,464	3,411	4,977	4,406	4,923	5,685	4,599	3,910	4,921	3,922	3,150
1986	4,703	3,703	3,212	2,850	4,625	3,457	4,637	8,021	16,177	19,622	17,568	27,100
1987	30,693	36,605	44,056	36,397	35,408	32,109	30,398	27,244	26,501	31,192	35,262	38,968

Source: N.Y. Mercantile Exchange T.0576

Volume of Trading of Unleaded Regular Gasoline Futures in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	9,042	4,045	7,848	10,093	10,853	12,219	19,532	16,403	10,604	15,808	8,427	7,737	132,611
1986	13,478	11,914	9,459	7,352	14,033	10,288	12,878	17,396	55,329	104,884	74,711	107,630	439,352
1987	135,208	139,885	211,590	214,982	178,735	175,585	181,661	154,685	155,352	166,365	152,176	190,014	2,056,238

Source: N.Y. Mercantile Exchange T.0576A

Gold

Inflation fears and the dollar's slide supported gold prices again in 1987. The London daily fix ended 1987 at $486.50/oz., 21 percent higher than the year's first fix. Cash gold dipped under $400 in February, only to rise through the spring on U.S. inflation concerns linked to rising commodity prices. After selling off from a peak in May, gold prices drifted higher on worries that Persian Gulf fighting would cut oil supplies and the U.S. trade deficit would force interest rates higher and the dollar lower.

The stock market crash generated gains by gold, which were reversed by sales to meet stock margin calls and by heavy producer selling as cash gold approached $500. As 1987 ended, currency arbitrage boosted gold's dollar price, allowing the fix to reach a high of $502.75 on December 14. While its dollar price increased by more than the U.S. inflation rate during 1987, gold lost value in yen and Deutschemarks.

Bullion coins were popular in 1987. The American Eagle captured 65 percent of the U.S. market with sales of 2.7 million ounces, during its first year of sales ending October 20. An initial 558,000 ounces sold out in two days. The Mint bought more than 2.9 million ounces of newly mined U.S. gold to make the coins, and sales through October 20 generated $187 million in profits. Competing for U.S. market share were the Canadian Maple Leaf, Chinese Panda, Australian Nugget, and the U.K.'s Britannia, launched in 1987. U.S. importation of South African Krugerrands was banned by the Anti-Apartheid Act of 1986, although their sale and possession remained legal in the U.S. In some nations where Krugerrands were politically unacceptable, they were being turned into bullion.

The Bureau of Mines (BOM) estimates the world's gold resources at 2.4 billion ounces, of which 15 to 20 percent would be recovered as a by-product. South Africa has about half the resources. The USSR, Brazil, and the U.S. each have about 12 percent. World production in 1986 was estimated at 50.94 million ounces and was expected to be higher in 1987 and 1988, because of the number of mines that opened since the 1980 gold price explosion. With techniques such as heap leaching, the average cost of production fell from $344 in 1984 to less than $250 in 1987. Some mines, according to the Gold Institute, produce gold for as little as $90/oz., and many mines in the U.S. and Canada have variable costs under $200.

Australia had a new gold rush. The Boddington Mine, south of Perth, came on stream in 1987 with a projected capacity of 300,000 ounces a year. More than 40 other mines were expected to open in Australia in 1988, and five others planned major expansions. GoldCorp Australia, the government marketing organization, predicted 1987 output would top 100 tonnes, breaking the 1907 record.

U.S. mine production was estimated at 4.7 million ounces, up almost 1 million from 1986, according to the BOM. Refinery production was put at 6.7 million ounces, including 3.7 million from scrap and metal refined on a toll basis. Imports fell to an estimated 3.6 million ounces from 15.75 million in 1986. Total U.S. supply was put at 24.2 million ounces in 1986, total distribution was estimated at 10.3 million, and the apparent surplus was estimated at 13.9 million. Commercial gold stocks totaled 3.7 million ounces at the end of 1986. Apparently, the surplus went into noncommercial hoarding.

U.S. jewelry manufacturing is concentrated in New York and Providence. Jewelry consumed approximately 48 percent of the almost 3 million ounces of gold used in the U.S. in 1986, and data for 1987 indicate consumption should be close to the 1.6 million ounces in 1986. Other shares of consumption for 1986 were: electronic and other industrial, 35 percent; dental, 16 percent; and small bars and privately minted investment items, 1 percent.

Futures Markets

Gold futures are traded on the Commodity Exchange (COMEX) in New York, the Chicago Board of Trade, the Chicago International Monetary Market, and on the commodity exchanges in Winnipeg, Sydney, and Hong Kong. Options on futures are traded on COMEX.

World Mine Production of Gold In Thousands of Fine Ounces (Troy Ounces)

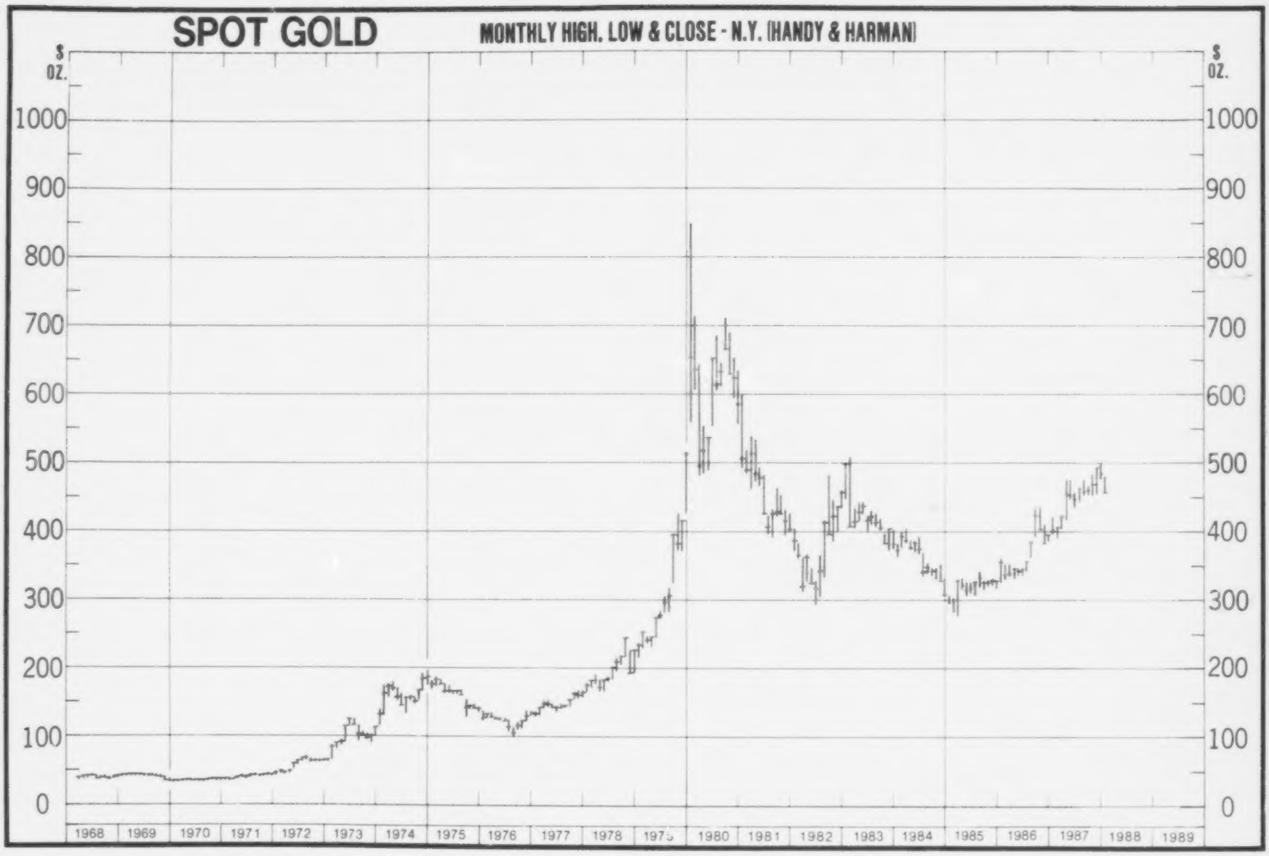
Year	Australia	Zaire (Congo)	Canada	China	Colombia	Ghana	India	Japan	Mexico	Nicaragua	Papua N. Guinea	Philippines	Zimbabwe	South Africa	United States	USSR[1]	Total World[1]
1984	1,296	117	2,683	1,900	800	287	65	104	271	35	835	827	478	21,861	2,085	8,650	46,475
1985[2]	1,881	63	2,815	1,950	1,143	299	59	171	266	24	1,187	1,063	472	21,565	2,427	8,700	48,673
1986[1]	2,479	60	3,365	2,100	1,400	290	60	332	280	24	1,157	1,295	480	20,514	3,733	8,850	50,937

[1] Estimated. [2] Preliminary. *Source: U.S. Bureau of Mines* T.258

U.S. Mine Production of Recoverable Gold In Thousands of Troy Ounces

Year	Alaska	Arizona	California	Colorado	Idaho	Montana	Nevada	New Mexico	South Dakota	Utah	Other States	Total U.S.
1984	19.4	54.9	85.9	60.0	[2]	181.2	1,020.5	[2]	310.5	[2]	352.2	2,084.6
1985	44.7	52.1	187.8	43.3	44.3	160.3	1,276.1	45.0	356.1	135.5	82.0	2,427.2
1986[1]	48.3	N.A.	425.6	120.3	70.4	[2]	2,098.9	39.9	[2]	[2]	929.8	3,733.2
1987[3]	52		500	120			2,400					4,000

[1] Preliminary. [2] Included in "Other States." [3] Estimate. *Source: Bureau of Mines* T.262



Salient U.S. Gold Statistics In Thousands of Troy Ounces

			Refinery Prod.				Stocks, Dec. 31				Consumption				
Year	Mine Production	Value Mil. $	Dom. & Foreign Ores	Secondary[2]	Exports (Excl. coinage)	Imports For Consumption	Treas. Dept.[5]	Futures Exch.	Earmarked[6]	Industrial	Dental	Industrial[3]	Jewelry & Arts	Total	Price $ Per Troy Oz.[4]
1980	970	594.1			6,119	4,542	264.3	5.0	354.5	.9	341	1,287	1,505	3,215	612.56
1981	1,379	633.9			6,437	4,652	264.1	2.4	350.6	.6	314	1,210	1,730	3,276	459.64
1982	1,466	551.0	1,308	1,785	2,970	4,921	264.0	2.3	348.6	.8	358	1,102	1,994	3,463	375.91
1983	2,003	849.1	1,972	1,772	3,139	4,593	263.4	2.5	341.4	.6	360	1,032	1,706	3,101	424.00
1984	2,085	751.8	2,101	1,759	4,981	7,869	262.8	2.4	337.3	.8	363	1,084	1,709	3,164	360.66
1985	2,427	771.0	2,076	1,597	3,966	8,226	262.7	2.1	377.4	.6	380	1,027	1,585	2,999	317.66
1986[1]	3,733	1,375	2,431	1,522	4,613	15,749	262.0	2.8	332.7	.9	356	994	1,619	2,976	368.24

[1] Preliminary. [2] Old Scrap. [3] Including space & defense. [4] Engelhard selling quotations. [5] Includes gold in Exchange Stabilization Fund. [6] Gold held for foreign & international official accounts at N.Y. Federal Reserve Bank. *Source: Bureau of Mines* T.260

Commodity Exchange Inc. (COMEX) Depository Warehouse Stocks of Gold In Thousands of Ounces

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1980	2,253	2,445	2,575	2,897	3,097	3,291	3,386	3,597	3,619	3,832	4,873	5,099
1981	4,814	4,570	4,192	3,897	3,513	3,585	3,417	3,258	2,887	2,776	2,605	2,494
1982	2,366	2,339	2,267	2,196	2,198	2,181	2,047	1,980	1,982	1,971	1,985	2,137
1983	2,247	2,621	2,754	2,645	2,636	2,723	2,630	2,648	2,570	2,538	2,500	2,485
1984	2,481	2,472	2,408	2,452	2,412	2,426	2,376	2,395	2,387	2,391	2,349	2,366
1985	2,308	2,308	2,273	2,109	2,136	2,142	2,133	2,107	2,119	2,083	2,099	2,105
1986	2,109	2,352	2,580	2,593	2,567	1,986	1,992	1,621	1,664	1,726	1,787	2,193
1987	2,890	2,798	2,817	2,903	2,628	2,665	2,614	2,624	2,670	2,636	2,644	2,645
1988	2,624											

Source: Commodity Exchange of N.Y. (COMEX) T.263

High, Low & Closing Prices of December Gold Futures on COMEX In Dollars per Ounce

Year of Delivery		Year Prior to Deliv. Oct.	Nov.	Dec.	Delivery Year Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Life of Delivery Range
1984	High	450.0	452.0	443.5	419.7	434.0	439.5	416.5	414.0	422.0	389.8	369.0	356.3	355.8	353.5	332.6	608.0
	Low	419.5	412.1	411.0	393.0	405.0	414.0	399.5	392.0	385.5	345.0	349.0	341.6	333.5	325.0	304.7	304.7
	Close	411.1	445.1	421.4	404.9	426.9	416.4	401.1	410.4	391.6	350.3	358.0	351.3	336.0	329.1	312.1	–
1985	High	398.0	389.0	364.5	332.0	327.0	357.0	353.0	342.3	339.0	339.0	350.2	336.5	335.7	333.4	328.2	489.5
	Low	370.0	355.0	330.0	317.8	301.5	306.0	328.0	319.0	320.5	315.5	326.5	318.2	324.9	322.1	313.0	301.5
	Close	372.2	360.7	333.9	325.2	307.5	349.2	329.9	327.4	325.3	335.2	339.8	327.1	326.7	322.9	326.7	—
1986	High	363.6	358.5	352.3	392.0	375.0	375.0	361.0	358.0	362.2	371.3	404.5	446.0	446.5	443.8	400.0	446.5
	Low	350.5	347.5	336.5	348.5	347.5	344.0	341.0	347.5	342.0	349.3	364.0	392.0	400.0	376.5	383.0	336.5
	Close	352.4	348.5	351.4	369.7	356.6	345.3	357.7	353.9	354.0	369.7	393.3	429.8	405.0	390.9	389.3	—
1987	High	483.9	434.0	425.0	445.0	427.0	443.0	501.0	500.0	480.0	475.7	490.2	474.8	496.0	497.0	502.3	502.3
	Low	443.0	398.5	404.0	415.0	407.0	420.0	432.2	462.5	447.7	452.7	456.9	458.0	457.9	456.0	475.0	365.0
	Close	443.0	410.9	424.6	423.8	422.9	436.1	472.7	467.1	462.9	475.1	458.7	458.8	471.2	491.0	486.1	—
1988	High	546.0	536.0	542.0													
	Low	498.8	491.5	508.0													
	Close	508.8	529.1	519.6													

Source: Commodity Exchange of N.Y. (COMEX) T.266

Gold Total Open Interest at New York (COMEX) & Chicago IMM[1] In Thousands of Contracts

Year	At New York (COMEX) Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	At Chicago (IMM)[1] Jan. 1	Apr. 1	July 1	Oct. 1
1984	139.7	121.6	140.8	120.8	134.3	147.0	134.9	132.2	139.4	141.7	161.0	158.2	1.4	.6	.2	.2
1985	170.3	135.0	145.7	119.2	130.2	126.0	131.3	122.5	135.4	122.8	123.1	128.3	2.4	1.9	2.4	2.2
1986	132.8	141.3	144.4	139.9	134.3	114.0	122.4	127.0	143.8	128.9	149.5	132.2	1.3	1.6	1.2	2.4
1987	140.9	127.3	140.1	157.5	172.0	148.2	145.9	157.9	148.0	140.3	136.5	153.3	1.4	1.8	2.4	1.5
1988	150.5												1.0			

[1] Beginning Jan. 1, 1985 data are for "Kilo" gold at CBT. *Source: Commodity Exchange of N.Y. (COMEX), International Monetary Market of Chicago (IMM)* & Chicago Board of Trade. T.261

Total Volume of Trading of Gold Futures at New York (COMEX) In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	749.3	786.5	829.8	563.2	833.7	737.8	1,006.9	791.3	753.2	671.3	814.9	577.7	9,122
1985	950.3	589.9	962.8	599.6	752.6	443.6	738.1	657.7	615.8	438.7	479.1	545.8	7,774
1986	1,126.2	574.2	703.9	617.9	482.2	451.6	527.6	711.1	1,054.7	846.9	724.3	579.6	8,400
1987	936.4	706.9	794.9	1,135.2	1,021.2	793.4	796.9	760.3	747.9	951.3	847.1	748.2	10,240

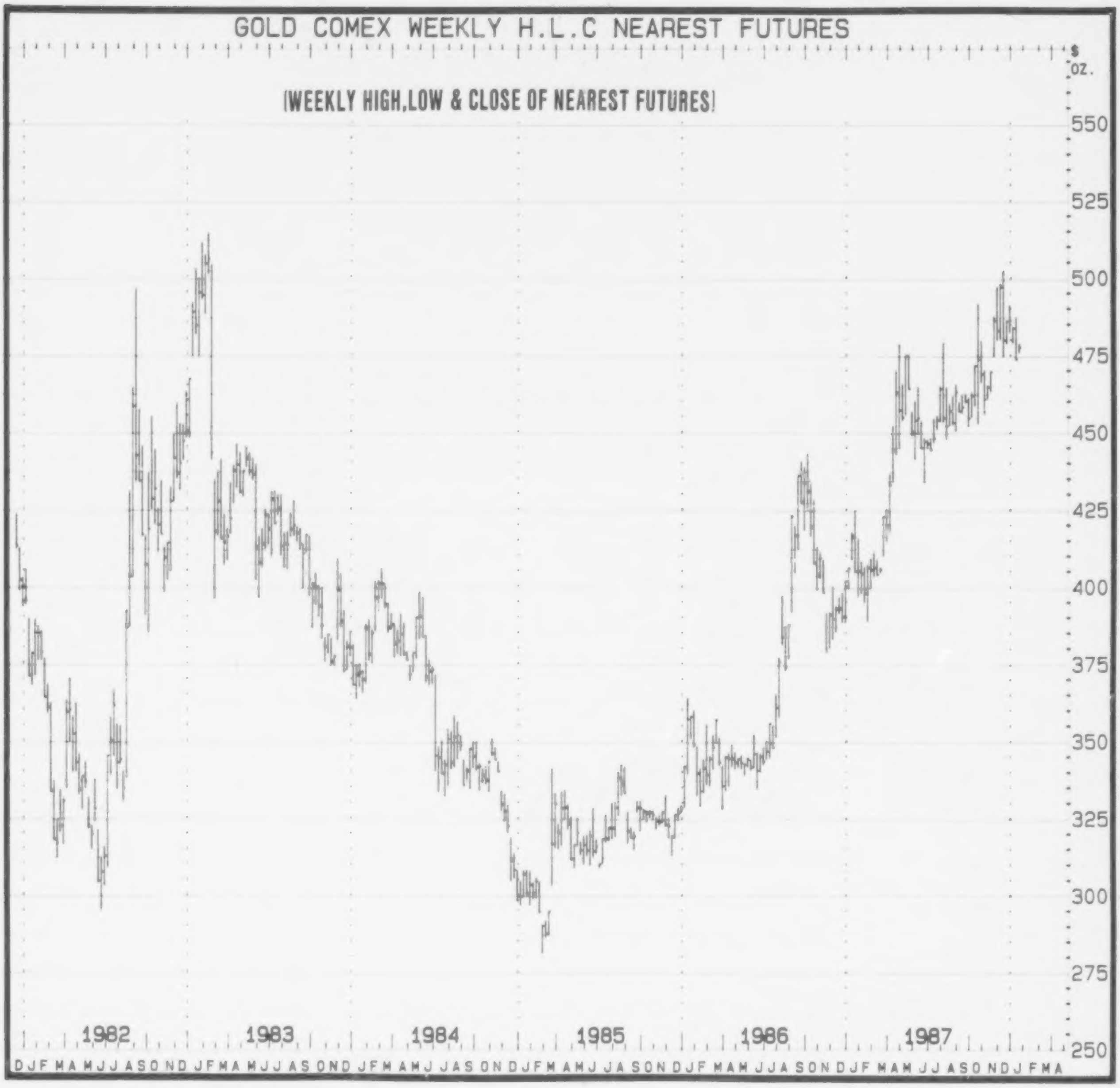
Source: Commodity Exchange of N.Y. (COMEX) T.265

U.S. Monetary Stock of Gold at End of Month In Billions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	11.120	11.116	11.111	11.109	11.104	11.100	11.099	11.098	11.097	11.096	11.096	11.096
1985	11.095	11.093	11.093	11.091	11.091	11.090	11.090	11.090	11.090	11.090	11.090	11.090
1986	11.090	11.090	11.090	11.089	11.085	11.084	11.084	11.084	11.084	11.066	11.070	11.064
1987	11.062	11.085	11.081	11.076	11.070	11.069	11.069	11.068	11.075			

Source: Federal Reserve Board T.264

GOLD



Monthly Average Gold Price (Handy & Harman at New York) $ Per Troy Ounce

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	227.5	246.1	242.2	238.9	257.4	279.2	295.3	301.6	357.0	392.7	392.2	461.0	307.59
1980	675.4	665.5	553.6	516.8	513.9	600.7	643.3	627.5	675.8	660.3	622.5	594.8	612.51
1981	557.4	500.3	498.8	494.9	479.8	460.8	408.8	411.0	444.1	437.2	413.7	408.7	459.61
1982	384.1	374.1	330.3	350.0	334.4	315.0	340.1	366.0	435.6	421.8	414.1	445.4	375.94
1983	479.9	490.4	419.7	432.2	437.6	412.8	423.1	416.3	411.5	393.2	382.3	387.1	423.83
1984	370.9	386.0	394.4	381.7	377.3	377.7	346.4	347.7	340.9	340.1	340.9	319.0	360.23
1985	302.8	298.8	303.9	324.9	316.1	316.5	317.8	330.2	322.6	326.2	325.5	322.4	317.31
1986	345.5	339.3	345.4	340.6	340.5	342.8	348.9	376.9	419.0	423.6	398.8	391.2	367.70
1987[1]	400.3	401.3	408.9	438.7	460.1	449.6	450.8	460.9	460.2	465.4	468.0	486.0	445.85

[1] Preliminary. *Source: U.S. Bureau of Mines; American Metal Market, Handy & Harman* T.259

Grain Sorghum

World production of grain sorghum in 1987/88 was projected by USDA at 59 million tonnes, down 11 percent from a year earlier. The U.S. was the dominant producer, with 32 percent of total output. India was second, with a crop of 9 million tonnes, about 12 percent less than the year before.

World trade in sorghum has declined in recent years, though U.S. exports have been fairly steady. The U.S. is the largest exporter, with a market share in 1987/88 of 70 percent. Australia and Argentina are also exporters. Japan was the major importer with expected purchases of 3.8 million tonnes, or 46 percent of world trade. Mexico was expected to import 1.5 million tonnes. Total use of sorghum was projected at 60.4 million tonnes, 1 percent less than a year earlier. World carryover stocks were forecast at 20.4 million tonnes, 7 percent below 1986/87.

The U.S. crop was estimated at 741 million bushels, down 21 percent from 1986 and the smallest since the drought-damaged 1983 harvest. Harvested acreage was put at 10.5 million, down from 13.9 million in 1986/87. Producers were offered the option of a 15-percent paid acreage diversion, and many took it. The national average yield of 70.5 bu./acre exceeded the previous year's by 6 percent. Major producing states were Kansas, Texas, and Nebraska.

U.S. 1987/88 beginning stocks of 732 million bushels were 33 percent above a year earlier. Total supply was 1.47 billion bushels, 1 percent less than the previous year. Usage was expected to increase 4 percent to 790 million bushels. Feed use was put at 550 million bushels, near a year earlier. While poultry output and hog production were anticipated to increase, cattle numbers in sorghum states were likely to hold about even. Projected exports of 225 million bushels were 14 percent above the previous season's. Markets for U.S. sorghum were Japan, Taiwan, and Venezuela.

Season's ending stocks were projected at 682 million bushels, 7 percent less than a year earlier.

U.S. Government Program

For the 1988 crop, the price-support loan rate is $1.65/bu., with a target price of $2.82. In 1987, the loan rate was $1.82/bu., while the target price was $2.88. Producers must reduce their base acreage by 20 percent. No paid land diversion option had been announced at this writing, but could be later.

World Sorghum Supply and Demand In Millions of Metric Tons

Crop Year	Exports				Imports			Total Production	Utilization					Stocks[3]		
	Argentina	Non-U.S.	U.S.	Total	Japan	U.S.S.R.	Total		China	Japan	Mexico	U.S.S.R.	Total	Non-U.S.	U.S.	Total
1983–4	4.8	6.8	6.2	13.0	4.2	1.9	13.0	58.9	8.3	4.0	6.3	2.0	62.4	3.8	7.3	11.1
1984–5	3.4	5.6	7.5	13.1	4.6	1.5	13.1	66.2	7.2	4.7	6.4	1.5	66.1	3.7	7.6	11.3
1985–6	2.2	4.6	4.1	8.7	5.1	.1	8.7	70.5	4.9	5.0	5.7	.6	64.2	3.6	14.0	17.6
1986–7[1]	1.0	2.9	5.1	8.1	4.2	.1	8.1	65.7	5.0	4.1	5.1	.1	61.2	3.6	18.6	22.1
1987–8[2]	.8	2.4	5.8	8.2	3.8	.1	8.2	58.6	5.0	4.4	5.5	.1	60.4	3.0	17.3	20.3

[1] Preliminary. [2] Estimate. [3] End of crop year season. *Source: Foreign Agricultural Service, U.S.D.A.* T.272a

Salient Statistics of Grain Sorghum in the United States

Crop Year	Acreage Planted[2] for All Purposes	For Grain					For Silage			For Forage	U. S. Exports of Feed Grains Under Govt. Programs	
		Acreage Harv.	Production 1,000 Bushels	Yield Per Harv. Acre Bushels	Price Cents Per Bushel	Produc. Value Million Dollars	Acreage Harv. 1,000 Acres	Production 1,000 Tons	Yield Per Harv. Acre Tons	Acreage Harv. 1,000 Acres	Mutual Security (AID)	Total All
	1,000 Acres										(In Ths. Metric Tons)	
1983–4	11,880	10,001	487,521	48.7	284	1,382	639	6,572	10.3	747	392	848
1984–5	17,254	15,355	866,241	56.4	239	2,055	609	6,472	10.6	679	793	1,618
1985–6	18,285	16,672	1,120,271	66.8	219	2,407	534	6,566	12.3	796	405	1,641
1986–7[1]	15,321	13,904	941,634	67.7			495	5,850	11.8			
1987–8[1]	11,771	10,512	740,603	70.5								

[1] Preliminary. [2] Grain and sweet sorghums for all uses including syrup. *Source: Crop Reporting Board, U.S.D.A.* T.267

Production of All Sorghum for Grain in the United States, by States In Thousands of Bushels

Year	Alabama	Arizona	California	Colorado	Kansas	Missouri	Nebraska	New Mexico	North Carolina	Oklahoma	South Dakota	Texas	Arkansas
1983		988	3,645	6,960	121,690	40,020	61,000	6,300	1,386	11,880	13,630	157,500	17,600
1984		1,360	3,936	15,910	216,750	91,770	121,600	15,400	3,025	18,000	18,565	209,350	42,480
1985	12,650	1,296	2,988	11,200	296,700	117,030	154,400	13,920	3,224	22,500	15,000	241,900	66,240
1986	4,000	1,044	2,210	11,700	311,250	92,340	139,730	10,350	1,350	23,030	14,030	213,750	40,920
1987[1]	2,475	828	1,700	8,970	270,100	65,450	109,800	8,320	1,935	18,900	13,440	156,800	29,160

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.268

GRAIN SORGHUM

U.S. Grain Sorghum Quarterly Supply and Disappearance In Millions of Bushels

Year & Period Beginning Sept. 1	Supply				Disappearance						Ending Stocks		
					Domestic Use								
	Begin Stocks	Production	Imports	Total Supply	Food, Alcohol & Industrial	Seed	Feed & Resid.	Total	Exports	Total	Gov't Owned[1]	Privately Owned[2]	Total Stocks
1983–4	439.1	487.5	0.1	926.7	7.7	2.3	384.7	394.7	244.6	639.3	102.8	184.6	287.4
Sep.–May	439.1	487.5	—	926.6	5.7	1.1	356.5	363.3	194.4	557.7	78.0	290.9	368.9
Jun.–Aug.	368.9	—	0.1	369.0	2.0	1.2	28.2	31.4	50.2	81.6	102.8	184.6	287.4
1984–5	287.4	866.2	0.1	1,153.7	15.3	2.0	539.3	556.6	296.9	853.5	112.1	188.1	300.2
Sep.–May	287.4	866.2	0.1	1,153.7	12.4	1.5	542.2	556.7	236.8	792.9	111.1	249.7	360.8
June–Aug.	360.8	—	—	360.8	2.9	.5	−2.9	.5	60.1	60.6	112.1	188.1	300.2
1985–6	300.2	1,120.3	—	1,420.5	26.0	1.7	663.8	691.5	178.0	869.5	207.2	343.8	551.0
Sep.–May	300.2	1,120.3	—	1,420.5	22.1	1.2	626.9	650.2	140.3	790.5	181.4	447.5	630.0
June–Aug.	630.0	—	—	630.0	3.9	.5	36.9	41.3	37.7	79.0	207.2	343.8	551.0
1986–7[3]	551.0	941.6	—	1,492.6	13.0	1.6	548.2	562.8	198.3	761.1	409.0	322.5	731.5
Sep.–May	551.0	941.6	—	1,492.6	11.0	1.0	502.1	514.1	154.8	668.9	400.4	423.3	823.7
June—Aug.	823.7	—	—	823.7	2.0	.6	46.1	48.7	43.5	92.2			731.5
1987–8[4]	731.5	740.6	—	1,472.1	—— 15.0 ——		550.0	565.0	225.0	790.0			682.1

[1] Uncommitted inventory. [2] Includes quantity under loan & farmer-owned reserve. [3] Preliminary. [4] Estimate. *Source: Economic Research Service, U.S.D.A.* T.269

Average Price of Sorghum Grain, No. 2, Yellow at Kansas City In Dollars Per 100 Pounds (Cwt.)

Year	Oct.	Nov.	Dec.	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Average
1978–9	3.61	3.67	3.64	3.71	3.73	3.77	3.81	3.92	4.41	4.89	4.44	4.34	3.92
1979–0	4.42	4.41	4.57	4.21	4.35	4.20	4.15	4.31	4.49	5.36	5.71	5.61	4.54
1980–1	5.65	5.91	5.82	5.79	5.52	5.46	5.49	5.38	5.23	5.29	4.58	4.16	5.48
1981–2	4.14	4.14	4.27	4.44	4.26	4.28	4.45	4.48	4.50	4.38	4.02	4.06	4.29
1982–3	3.85	4.25	4.37	4.37	4.54	5.08	5.30	5.37	5.37	5.32	5.69	5.55	4.80
1983–4	5.37	5.25	5.16	5.09	5.03	5.40	5.36	5.39	5.40	4.95	4.74	4.46	5.22
1984–5	4.25	4.28	4.32	4.48	4.33	4.58	4.76	4.74	4.74	4.50	4.06	3.56	4.46
1985–6	3.62	3.75	3.97	3.95	3.80	3.82	4.00	4.25	4.00	3.20	2.71	2.47	3.72
1986–7[1]	2.60	2.70	2.62	2.50	2.57	2.80	2.85	3.10	3.20	2.80	2.55	2.65	2.73
1987–8[1]	2.75	2.90											

[1] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.271

U.S. Exports of Grain Sorghum, by Country of Destination In Thousands of Metric Tons

Yr. Beg. October	Poland	Belg. & Luxem.	Portugal	Spain	W. Germany	India	Venezuela	Israel	Japan	Senegal	Netherlands	Norway	Mexico	South Africa	Total All Exports
1978–9	136.4	—			.8	—		689.4	1,981.1	1.2	37.8	141.5	1,124.0	—	5,247.1
1979–0	107.5	.3			.3	—		348.0	3,972.7	12.5	69.1	232.8	2,255.2	—	8,199.2
1980–1	—	60.0			—	—	501	449.0	2,725.4	13.3	11.5	198.9	2,646.3	.3	7,701.6
1981–2	—	.4		790	.4	—	713	368.0	2,436.9	1.9	4	201.2	544.2	—	6,289.8
1982–3	—	0		105		—	243	340.7	741.0	13.9	0	44.6	3,260.3	.2	5,402.6
1983–4	0	0		465	0	0	206	573.6	1,504.8	145.0	.2	0	2,758.4	.2	6,225.6
1984–5[1]	0	.1		45	.1	0	1,093	502.7	2,389.8	30.5	19.3	0	2,156.2	11.8	7,549.1

[1] Preliminary. *Source: Grain & Feed Division, U.S.D.A.* T.270

Grain Sorghum Price Support Program & Market Prices

Year Beginning September	Price Support Operations (Million Cwt.)						No. 2 Yellow ($ Cwt.)			
	Put Under Price Support									
	Quantity	% of Production	Acquired By CCC	Owned by CCC Sept. 30	Support Loan ($ Per Cwt.)	Target Price ($ Per Cwt.)	Kansas City	Texas High Plains	Los Angeles	Gulf Ports
1979–0	35.8	7.9	1.3	24.6	3.57	4.18	4.54	4.88	6.32	5.43
1980–1	18.1	5.6	.1	21.4	3.82	4.46	5.48	5.97	7.31	6.27
1981–2	155.0	31.5	6.5	24.0	4.07	4.55	4.29	4.87	6.18	5.03
1982–3	134.5	28.8	41.0	92.4	4.32	4.64	4.80	5.19	6.56	5.41
1983–4	7.6	2.8	1.6	50.0	4.50	4.86	5.22	5.53	6.69	5.77
1984–5	36.4	7.5	36.4	67.6	4.32	5.14	4.46	5.04	6.08	4.90
1985–6[1]	210.0	33.7	84.0	135.0	4.32	5.14	3.72	4.33		4.07
1986–7[2]					3.25	5.14	2.73	3.24		3.22
1987–8[2]					3.11	5.14				

[1] Preliminary. [2] Estimate. *Source: Economic Research Service, U.S.D.A.* T.272

Hay

In 1987, hay was expected to be harvested on 60.2 million acres, 1.1 million lower than in 1986. The 1987 crop was estimated at 150.8 million short tons, a drop of 4.5 million from 1986. The reduction is mainly a reflection of a decline in acreage, as yields were forecast to be higher.

The average U.S. yield for all hay was estimated at 2.5 short tons per acre, equal to the 1982 record. Whereas 1986 yields were adversely affected by drought in the Southeast, it was moisture deficiency in the Lake States and Pacific Northwest that affected output in 1987.

States with yields down by 5 percent or more were Arizona, Arkansas, Connecticut, Michigan, Minnesota, Rhode Island and South Dakota. Yields were down by less than 5 percent in five other states. In the remaining 31 states for which yields were given, they equaled or exceeded year-earlier levels.

The total supply for 1987, at 183.2 million tons, was expected to exceed the previous year's. The largest carryover since 1981 was anticipated. Roughage-consuming animal units were estimated to have declined to 79.9 million in 1987 from 80.8 million in 1986. This may have resulted in a decline in hay usage, especially since pasture conditions were above the 10-year average.

Salient Statistics of All Hay in the United States

Year Beginning May	Acres Harvested 1,000 Acres	Yield Per Acre Tons	Production	Carryover May 1	Disappearance	Supply	Disappearance	Animal Units Fed[2] Millions	Farm Price[3] $ Per Ton	Farm Produc. Value Million $	Alfalfa Seed (certified)	Timothy Seed	Red Clover Seed	Sudan-Grass
			Million Tons			Per Animal Unit In Tons					Retail Price Paid by Farmers: Dollars Per Cwt.			
1983–4	59,717	2.36	140.8	28.1	148.8	1.89	1.67	89.1	75.80	9,967	209.00	67.40	151.00	45.00
1984–5	61,445	2.45	150.6	20.1	143.8	1.99	1.68	85.7	72.70	10,204	220.00	69.60	147.00	42.40
1985–6[1]	60,553	2.46	148.6	26.9	148.8	2.11	1.79	83.1	67.60	10,045				
1986–7[1]	62,274	2.49	155.3	26.7	149.2	2.25	1.85	80.8	60.10	9,334				
1987–8[1]	60,203	2.55	153.7	32.4		2.35		79.1						

[1] Preliminary. [2] Roughage-consuming animal units fed annually. [3] Price of hay sold baled, for year beginning July.

Source: Economic Research Service, U.S.D.A.

T.275

Production of All Hay in the United States by Important States In Millions of Tons

Year	Calif.	Idaho	Ill.	Iowa	Mich.	Minn.	Mo.	No. Dak.	Nebr.	N.Y.	Ohio	Pa.	So. Dak.	Wis.	Texas
1983	7.4	4.9	2.7	5.9	4.5	8.3	5.4	4.5	7.6	5.3	3.2	4.6	7.6	12.2	7.5
1984	7.9	4.7	3.9	7.9	5.3	8.4	6.3	4.5	7.7	5.4	3.8	5.1	8.1	12.8	5.4
1985	8.0	4.1	4.1	7.1	5.7	8.0	6.5	3.8	6.8	5.3	4.6	5.3	4.8	11.1	8.2
1986	8.6	4.7	3.7	8.0	5.7	9.7	6.0	5.4	7.3	5.3	4.3	5.1	9.3	10.8	7.5
1987[1]	8.6	4.4	3.3	6.7	4.4	7.8	6.2	5.1	6.2	5.3	4.3	5.0	7.3	12.9	7.8

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.*

T.277

U.S. Types of Hay Production & Farm Stocks In Millions of Short Tons

Year	Production					Farm Stocks	
	Alfalfa & Mixtures	All Other	All Hay	Corn for Silage[1]	Sorghum[1] Silage	Jan. 1	May 1
1983	82.2	58.6	140.8	96.3	6.6	104.0	28.1
1984	90.1	60.5	150.6	104.6	6.5	89.3	20.1
1985	85.0	63.6	148.6	102.6	6.3	100.6	26.9
1986	91.[illegible]	63.8	155.3	88.5	5.9	96.6	26.7
1987[2]	88.4	65.4	153.7			121.5	32.4

[1] Not included in all tame hay. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.*

T.276

Average Price Received by Farmers for All Hay (Baled) In Dollars Per Ton

Year	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Average[1]
1983–4	78.10	72.70	71.20	71.20	74.70	76.80	75.10	76.70	76.60	78.70	79.40	79.80	75.80
1984–5	82.50	76.10	72.40	70.40	70.70	73.10	71.40	73.40	73.00	73.10	72.20	72.50	72.70
1985–6	80.80	70.20	67.90	65.20	67.10	67.50	64.30	65.40	65.80	66.70	67.10	66.20	67.60
1986–7[2]	70.30	61.50	58.40	58.10	57.80	56.90	56.00	56.80	55.40	58.10	57.90	62.90	60.10
1987–8[2]	73.30	63.20	61.60	61.80	65.10	65.10	62.10	65.00					

[1] Weighted average by sales. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.*

T.278

Heating Oil

U.S. average distillate fuel oil demand was estimated at 2.9 million to 3 million barrels per day (bpd) for 1987, of which approximately 2.7 million were supplied from domestic refinery output and up to 300,000 from imported product. Distillate fuel oil usage in the U.S. is almost evenly split between diesel oil and heating oil. The most significant difference between the final products is the absence of highway fuel taxes on heating oil. Assuming a normally cold winter--always a hazard in forecasting this market--the Department of Energy (DOE) was expecting an increase of just over 1 percent in 1988 consumption, split more or less evenly between diesel and heating.

DOE reported that the 1987 winter heating season had about 6 percent fewer degree days than normal. "Normal" is based on population-weighted calculations of data from 1951 through 1980.

Among industrial users, the potential to switch from heating oil to natural gas remains a control on pricing. As the spread between oil and gas prices increases, there is movement from oil into gas. When oil is the cheaper source of BTUs, many of the plants using gas simply revert to oil. In the transportation sector, however, there is no feasible substitute for diesel fuel over the short run, whether consumed in heavy trucks or by diesel locomotives. Demand by this sector depends primarily on economic growth, which in early 1988 appeared to be no easier to predict than the weather that controls heating oil usage.

One trend in the petroleum industry that has affected apparent supplies of heating oil is the adoption of just-in-time inventory management methods. Refiners, particularly those serving the East Coast, have become aware of the availability of imports, which can reach the U.S. in 10 to 14 days from Europe. They have also become more comfortable with meeting seasonal demand with their refineries' throughput, resulting in less pre-refining ahead of the heating season. As long as refiners are certain of the availability of crude oil or of importable product, they can conserve cash that otherwise would be tied up in holding a larger operating cushion. Nevertheless, when the Persian Gulf war intensified during the summer of 1987, precautionary inventory building drove up heating oil prices in concert with crude oil and gasoline. But summer's price gains evaporated once it became known that OPEC was exceeding its crude oil export quota by as much as 2 million bpd.

Natural gas was expected to continue its long-run erosion of heating oil's share of the home heating market. Where gas lines are available, gas dominates new construction. Among existing homes, there are virtually no conversions from gas to oil, regardless of their respective costs per BTU. However, higher oil prices tend to encourage homeowners to convert to gas, rather than to upgrade an obsolete oil-fired heating system with a more energy-efficient model. Affecting demand for both home heating fuels is the continued improvement in energy-efficient home construction methods and materials, many of which, such as minimum R-values for insulation, now are required by building codes in colder climates.

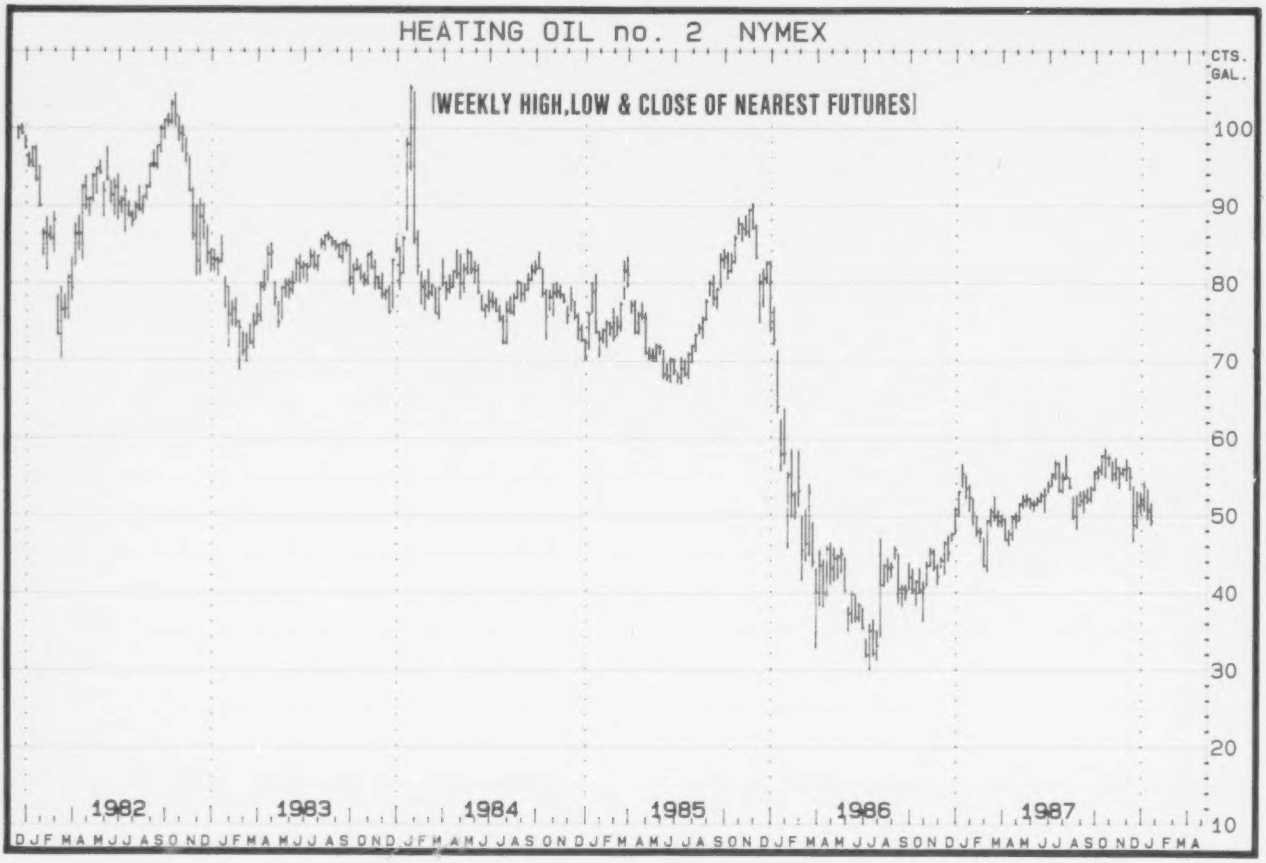
Futures Markets

Heating oil futures and options on those futures are traded on the New York Mercantile Exchange. They are also traded as gas-oil futures on London's International Petroleum Exchange.

High, Low & Closing Prices of January Heating Oil Futures (No. 2) in N.Y. In Cents per Gallon

Year of Delivery	Year Prior to Delivery[1]												Life of Delivery Range
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept	Oct	Nov.	Dec.[1]	
1983 High	—	—	85.00	95.75	100.40	98.75	93.60	96.65	101.95	104.20	99.20	90.60	104.20
Low	—	—	82.00	85.50	94.00	90.61	89.25	90.70	95.55	97.10	84.20	79.81	79.81
Close	—	—	85.00	94.40	97.00	91.08	90.80	96.30	99.79	98.29	86.52	82.81	—
1984 High	—	—	75.25	84.25	83.75	87.00	88.90	90.15	87.55	84.15	84.10	85.55	90.15
Low	—	—	68.70	78.50	79.25	81.80	85.25	86.30	82.00	80.20	77.10	75.80	68.70
Close	—	—	74.60	82.49	81.80	86.20	88.90	86.52	82.50	82.16	77.44	84.24	—
1985 High	—	—	83.75	84.40	87.45	87.40	83.25	84.05	86.10	85.45	81.05	79.25	87.45
Low	—	—	83.15	82.30	82.20	81.75	76.05	76.90	80.80	75.75	74.75	72.25	72.25
Close	—	—	83.75	83.00	86.87	83.00	76.30	82.55	84.80	79.98	76.61	72.40	—
1986 High	—	—	76.90	79.10	76.50	75.50	74.85	79.35	83.50	88.25	90.75	87.45	90.75
Low	—	—	76.70	75.50	74.10	70.00	70.35	73.15	76.55	80.30	85.15	74.80	70.00
Close	—	—	76.10	76.00	76.25	71.40	73.55	79.35	82.49	87.52	87.07	86.55	—
1987 High	57.60	54.00	46.15	44.65	47.10	44.45	40.70	47.80	49.00	46.25	46.75	49.20	57.60
Low	56.50	44.50	37.60	36.20	41.60	40.20	33.85	36.40	33.53	38.95	41.90	42.35	33.53
Close	56.50	44.50	37.60	41.33	41.60	41.33	36.20	47.36	44.57	43.08	42.89	48.90	—
1988 High	—	50.15	52.60	53.24	55.05	57.50	60.25	60.20	55.95	58.70	56.90	57.30	60.25
Low	—	49.02	48.75	50.85	52.70	54.35	56.50	50.75	52.00	55.10	52.80	46.60	46.60
Close	—	49.02	52.32	52.70	54.60	57.30	58.30	54.36	55.49	57.19	54.87	51.44	—

[1] Contract expires the last business day of the previous calendar month quoted. *Source: N.Y. Mercantile Exchange* T.281



Month-End Open Interest of Heating Oil Futures (No. 2) in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1979	327	200	118	299	370	485	1,165	1,280	1,894	1,952	2,221	1,973
1980	2,186	2,590	2,032	2,324	2,622	2,948	3,286	5,889	8,365	11,884	13,519	11,556
1981	11,792	12,040	13,256	14,893	17,919	16,822	19,220	28,102	36,996	35,519	33,517	31,585
1982	22,042	15,655	21,121	18,502	19,248	21,277	21,676	20,815	22,500	29,614	24,486	21,848
1983	19,642	23,307	18,980	22,868	27,797	29,320	34,414	32,276	37,856	36,164	36,230	30,916
1984	32,596	18,900	17,738	16,617	18,343	18,109	19,813	20,290	28,995	27,200	26,798	25,371
1985	19,122	16,552	17,351	15,796	17,660	19,698	22,993	25,731	30,127	33,438	36,793	31,172
1986	29,066	31,685	33,377	33,760	40,977	55,945	67,625	64,450	74,104	82,224	70,196	72,564
1987	64,374	53,307	46,624	42,902	41,538	49,470	49,208	64,636	65,904	70,432	73,856	63,427

Source: N.Y. Mercantile Exchange T.279

Volume of Trading of Heating Oil Futures[1] in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	365	515	182	369	502	1,377	2,156	2,205	2,847	5,895	9,371	8,010	33,804
1980	8,512	8,427	5,146	4,798	3,421	5,923	6,074	11,564	27,430	40,525	53,098	63,366	238,284
1981	67,368	58,514	55,299	65,350	58,933	76,580	86,394	100,102	99,790	121,455	78,972	126,749	995,532
1982	165,079	148,794	176,373	146,821	98,440	135,181	107,102	118,496	120,830	167,439	177,832	183,139	1,745,526
1983	153,864	112,649	137,237	121,300	163,923	149,138	138,706	140,671	187,283	169,271	200,400	193,877	1,868,322
1984	254,788	209,802	144,326	144,041	161,689	144,182	120,668	153,913	137,011	281,183	182,005	163,938	2,091,546
1985	286,264	149,403	162,503	137,064	122,699	133,339	148,117	157,552	202,785	246,558	219,126	242,323	2,207,733
1986	274,057	221,156	214,501	207,748	223,943	247,552	309,662	282,636	285,246	387,054	271,497	349,992	3,275,044
1987	399,813	328,327	348,204	282,109	238,048	273,708	329,078	343,355	347,152	437,157	422,982	543,462	4,293,395

[1] No. 2 heating oil. *Source: N.Y. Mercantile Exchange* T.280

HEATING OIL

U.S. Gross Input to Crude Oil Distillation Units In Millions of 42-Gallon Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1974	373.2	326.5	368.7	371.6	400.4	398.8	414.1	409.1	380.0	398.3	386.0	404.9	4,632
1975	395.8	353.9	384.3	368.3	384.7	385.6	414.9	416.9	401.5	397.3	394.6	411.4	4,709
1976	403.6	388.1	412.2	396.4	413.4	427.7	446.1	446.3	425.3	428.0	437.3	457.0	5,081
1977	453.4	425.5	456.2	438.3	463.1	457.9	471.1	465.9	457.8	466.3	449.2	463.5	5,468
1978	450.1	401.4	448.3	426.6	472.4	451.5	470.5	483.8	462.2	475.9	470.6	487.6	5,501
1979	467.7	409.3	449.6	445.2	457.1	453.6	477.9	474.0	447.1	457.9	447.0	472.4	5,459
1980	453.6	421.7	433.8	413.5	423.4	421.7	422.5	412.3	408.2	402.9	403.4	432.4	5,049
1981	418.3	369.6	391.4	368.5	389.3	381.9	389.6	409.2	382.2	382.9	377.5	393.8	4,654
1982	371.5	325.1	361.4	353.1	379.1	388.1	399.6	378.0	376.7	376.8	364.4	368.8	4,443
1983	355.4	307.8	344.8	352.0	374.4	378.3	390.9	383.1	381.9	371.1	366.8	354.1	4,361
1984	364.8	356.0	374.2	362.3	385.5	372.5	377.5	388.6	374.2	376.7	367.7	371.0	4,471
1985[1]	359.2	321.6	356.7	359.0	381.4	372.7	392.6	378.9	362.9	383.3	378.9	395.1	4,440
1986[1]	389.5	338.0	364.3	377.1	412.7	400.4	403.3	415.2	395.7	395.3	387.8	400.3	4,681
1987[1]	392.8	346.6	378.1	377.9	397.3	397.0	420.7	417.4					

[1] Preliminary. *Source: Bureau of Mines* T.282

Average Price of Distillate (Middle) No. 2 Fuel Oil[1] Index (1967 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1973	113.9	124.1	129.1	130.1	133.8	137.4	141.8	143.3	145.6	147.7	157.3	171.7	139.7
1974	194.8	234.1	251.8	257.9	269.2	279.7	288.9	294.8	298.8	297.9	296.0	300.1	272.0
1975	299.1	297.5	294.6	294.9	296.1	301.3	308.3	312.9	318.2	322.9	330.8	336.3	309.4
1976	336.7	339.3	335.3	331.8	328.5	329.2	332.2	336.2	338.9	341.2	344.3	349.8	337.0
1977	359.2	369.6	378.0	384.4	387.5	387.5	388.6	389.1	389.3	389.6	392.4	394.4	384.1
1978	396.7	398.6	394.8	393.3	393.3	393.3	393.2	393.6	394.0	400.0	407.6	418.0	398.0
1979	425.7	432.6	451.9	477.9	504.8	542.3	593.1	632.8	680.6	709.9	715.3	719.9	573.9
1980	739.3	793.5	837.7	858.9	964.8	860.9	870.2	875.6	873.2	868.4	873.4	891.1	850.6
1981	935.4	1,000.3	1,082.8	1,105.4	1,092.5	1,092.2	1,079.8	1,076.7	1,067.8	1,056.1	1,047.5	1,060.6	1,058.1
1982	1,067.8	1,058.2	1,029.3	953.6	928.7	974.6	1,024.0	1,022.2	998.8	999.2	1,041.5	1,054.5	1,012.7
1983	985.3	927.4	874.2	813.4	838.1	879.4	876.3	883.0	894.3	912.2	901.8	892.1	889.8
1984	871.4	924.4	952.1	874.9	881.9	895.2	893.4	859.6	837.8	854.4	868.9	851.4	880.5
1985	835.7	810.3	809.9	820.3	851.0	797.7	754.9	743.6	800.5	841.3	887.5	905.5	821.5
1986[2]	830.2	631.6	519.1	504.3	476.4	452.9	369.0	406.5	469.0	436.0	440.7	461.8	499.8
1987[2]	520.3	537.9	503.2	526.1	539.8	558.1	571.0	601.3	574.9	600.7			

[1] Barge lots, f.o.b. refinery or terminal, excluding all fees & taxes. [2] Preliminary. *Source: Bureau of Labor Statistics* (0573) T.283

Average Wholesale Price of Kerosene (Light Distillate)—No. 1 Fuel Index (1967 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1973	112.1	120.4	121.2	123.4	122.9	126.9	128.6	129.4	130.0	135.6	135.9	145.9	128.0
1974	154.3	184.8	198.7	209.4	217.6	233.2	241.7	250.2	256.8	254.7	261.4	257.9	226.7
1975	253.7	267.2	274.9	273.6	280.6	284.6	283.7	299.1	297.9	299.4	304.2	307.8	285.6
1976	310.5	316.6	313.9	311.2	306.7	303.8	305.4	309.2	311.5	316.0	320.2	323.2	312.3
1977	326.1	339.7	346.9	352.4	355.5	358.0	360.9	363.2	364.0	375.1	379.4	381.3	358.5
1978	383.0	388.2	388.4	387.9	390.7	391.4	393.1	394.4	395.8	397.6	398.4	403.0	392.7
1979	407.5	412.7	419.1	433.0	465.5	504.1	533.4	588.4	633.4	675.2	696.6	706.3	539.6
1980	733.9	776.9	834.6	862.5	870.5	878.4	892.7	903.1	903.2	896.3	896.8	911.4	863.4
1981	932.1	972.0	1,041.0	1,080.9	1,084.1	1,078.9	1,067.5	1,052.6	1,044.6	1,043.2	1,042.7	1,037.9	1,039.8
1982	1,044.3	1,034.3	1,027.9	1,009.1	975.9	974.2	984.4	983.0	976.3	969.7	985.9	992.1	996.4
1983	975.2	959.4	939.2	908.4	897.1	894.3	882.8	880.7	880.4	889.3	885.5	881.4	906.1
1984	872.2	885.8	903.5	879.2	876.8	876.5	874.3	863.0	853.2	854.4	857.1	847.5	870.3
1985[1]	840.8	833.3	827.5	824.5	826.9	803.1	779.8	780.3	780.6	795.2	806.3	812.7	809.3
1986[1]	795.6	750.2	684.6	584.8	523.8	504.4	452.7	413.3	426.8	423.9	419.4	429.1	534.0
1987[1]	451.9	488.1	486.4	502.2	512.1	530.1	550.6	577.0	579.3	597.8			

[1] Preliminary. *Source: Bureau of Labor Statistics* (0572) T.284

Stocks of Distillate Fuel in the U.S., First of the Month In Millions of Barrels

													Residual Fuel — Oil Stocks —	
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. 1	July 1
1978	250.3	213.3	165.7	137.9	136.2	144.6	157.3	180.5	200.2	220.7	233.1	233.2	90.0	72.0
1979	216.5	175.8	127.3	112.8	115.1	123.1	141.4	171.2	195.4	220.4	231.1	236.7	90.2	79.8
1980	228.7	212.4	191.7	177.9	177.2	183.4	196.6	213.8	226.3	232.4	225.7	222.4	95.6	87.8
1981	205.4	179.4	172.6	164.4	164.6	171.8	179.9	186.3	200.2	207.3	201.2	200.1	91.5	69.4
1982	191.5	164.4	147.4	126.3	108.0	113.6	123.7	148.2	158.7	161.2	170.1	185.6	78.0	60.7
1983	178.6	167.6	148.2	118.1	103.1	108.9	113.7	130.7	142.4	154.0	162.6	161.2	66.2	49.9
1984	140.3	119.3	132.2	109.6	97.7	98.1	112.8	124.4	133.3	142.9	152.2	161.0	48.5	46.9
1985[1]	161.1	141.8	121.5	99.4	97.1	104.7	109.7	115.7	113.8	117.4	123.4	139.7	53.0	40.2
1986[1]	143.7	139.0	112.8	99.3	95.3	98.9	107.9	118.9	137.7	152.4	151.6	158.3	50.4	43.0
1987[1]	155.1	141.4	123.5	110.0	100.4	101.8	104.3	114.7	125.2				47.4	41.3

[1] Preliminary. *Source: Bureau of Mines* T.285

U.S. Production of Distillate Fuel Oil In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	95.1	82.7	93.5	88.8	100.8	93.3	96.8	102.2	95.6	102.3	101.0	104.2	1,156.1
1979	94.3	80.9	93.6	88.4	95.0	94.6	102.5	103.0	100.6	100.8	97.2	99.9	1,150.8
1980	93.4	80.2	79.3	73.8	76.7	79.4	83.4	76.3	80.6	80.3	81.1	89.6	974.1
1981	92.6	78.6	77.0	72.5	76.1	75.0	74.2	82.3	78.3	77.0	81.5	88.6	953.8
1982	80.3	67.9	70.9	70.7	81.2	81.9	84.8	77.7	79.7	88.0	85.8	82.3	951.3
1983	72.0	59.8	61.8	65.1	75.8	76.4	80.7	81.1	82.2	83.1	80.4	78.2	896.5
1984	80.3	83.1	76.8	70.3	81.3	86.4	84.3	82.5	81.2	83.4	84.8	86.7	981.2
1985[1]	80.9	69.8	69.6	74.2	82.8	79.4	82.0	80.4	77.8	90.0	93.1	98.4	980.9
1986[1]	89.9	71.8	82.0	83.7	88.6	81.9	84.0	90.6	86.0	84.2	87.5	91.2	1,021.2
1987[1]	86.0	72.1	73.9	76.6	79.5	80.7	83.7	84.0					

[1] Preliminary. *Source: Dept. of Energy* T.286

U.S. Imports of Distillate Fuel Oil In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	6.1	5.9	6.0	3.0	3.9	4.4	4.6	4.4	4.9	5.5	6.7	7.9	63.3
1979	7.0	5.5	5.5	4.5	5.8	5.4	7.0	6.7	3.8	6.6	5.8	7.1	70.5
1980	5.5	6.9	6.0	4.6	3.9	3.2	3.6	2.4	3.0	3.6	4.0	5.2	51.9
1981	8.5	9.1	4.6	3.5	5.5	6.7	5.5	5.4	3.9	3.7	3.7	2.9	63.1
1982	3.0	3.7	1.5	1.8	2.3	3.1	3.9	2.5	1.8	2.8	4.4	3.4	34.0
1983	2.1	1.6	1.3	2.2	4.5	5.4	8.3	9.3	7.8	8.1	6.1	6.8	63.5
1984	9.3	13.2	3.6	6.6	7.8	7.7	6.2	8.0	8.7	13.0	9.5	5.9	99.4
1985[1]	8.4	4.2	4.8	7.3	6.3	4.6	3.0	2.5	6.7	8.1	8.4	8.9	73.1
1986[1]	9.7	3.6	6.7	4.4	4.6	5.1	9.7	11.5	7.8	7.5	7.6	10.5	90.3
1987[1]	6.1	6.4	7.8	5.5	6.2	7.4	11.7	6.6					

[1] Preliminary. *Source: Dept. of Energy* T.287

U.S. Domestic Consumption of Distillate Fuel Oil In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	138.2	135.8	127.3	93.3	96.2	85.1	78.2	86.8	79.9	95.4	107.5	128.8	1,252.6
1979	142.0	134.7	113.6	90.5	92.9	81.2	79.4	85.6	79.4	96.7	97.4	114.9	1,208.5
1980	115.1	107.6	98.5	79.0	74.5	69.5	69.7	66.2	77.6	90.5	88.5	112.1	1,049.0
1981	127.4	94.5	90.0	76.0	74.7	73.9	73.7	74.0	75.4	86.9	86.4	99.6	1,032.5
1982	108.0	86.4	91.3	89.3	75.8	73.5	63.8	68.8	75.2	80.0	74.2	88.5	974.9
1983	86.7	77.8	91.4	80.9	73.0	75.7	70.4	77.3	77.3	80.9	86.2	104.3	981.9
1984	109.3	82.2	101.0	87.8	87.2	77.8	77.6	79.3	79.6	85.7	84.8	88.8	1,041.2
1985[1]	107.3	92.4	95.1	83.0	80.6	77.8	75.5	81.7	77.3	89.9	82.4	100.9	1,046.8
1986[1]	100.5	96.7	98.2	88.2	85.6	76.3	80.4	81.2	76.2	90.3	86.3	103.2	1,063.7
1987[1]	101.0	93.7	93.1	90.1	82.8	83.8	83.8	78.7					

[1] Preliminary. *Source: Dept. of Energy* T.288

Hides and Leather

World production of bovine hides and skins in 1987 was projected at 4.28 million tonnes, down marginally from 1986 levels. The U.S. continued to be the largest producer, providing 23 percent of world output. The USSR, Brazil, and Argentina were major producers. Countries expected to show increases in output were Brazil, the USSR, Mexico, New Zealand, and Australia. Other large producers, notably the U.S., were expected to show slight to moderate declines. Utilization in 1987 was projected to increase 1 percent to 4.57 million tonnes, with higher demand in Brazil, Korea, and Mexico. World imports of hides and skins were expected to remain about equal to 1986's level.

U.S. production of bovine hides and skins from total commercial slaughter in 1987 declined about 4 percent from 1986 to 35.7 million hides. Termination of the dairy herd buy-out program in August 1987 reduced the slaughter of dairy cows and reversed the slight increase in overall slaughter that occurred in 1986. Cattle slaughter was expected to decline by 34 million head in 1988. Any upturn in cattle slaughter must await rebuilding of cattle herds. (In the U.S., the supply of hides is dependent on demand for red meat, not demand for leather.)

Footwear was the U.S. tanning industry's largest market, consuming an estimated 61 percent of leather shipments in 1987. The proportion of U.S. footwear production using leather uppers declined to 52 percent in 1987, from 54 percent in 1986, and production of sole leather dropped 10 percent. Apparently, higher leather prices boosted the use of leather substitutes. However, output of cattlehide garments was up 6 percent, and the production of leather upholstery was also higher.

U.S. raw cattle hide exports declined about 11 percent from 1986, to an estimated 24 million hides. The largest markets for U.S. cattle hides were Korea, Taiwan, Canada, and Mexico, with Korea taking 43 percent of the total. U.S. leather exports rose to an estimated $430 million, up 37 percent over 1986, helped by a weaker dollar. The U.S. exported leather to about 65 countries in 1987.

U.S. leather imports were down 3 percent in 1987, but prices were up 16 percent, causing the import value to increase to $478 million in 1987, from $407 million in 1986. Argentina was the largest supplier, followed by the U.K., Italy, and India.

Prices of cattle hides in 1987 exceeded the record highs of 1979. From Jan.-July 1987, the Department of Commerce composite average monthly price of three types of hides was 77.6 cents/lb., up 21 percent from the same 1986 period. Hide and leather prices remained strong for the balance of 1987, and were expected to continue firm into 1988 on reduced kills and good demand.

The 1988 outlook for U.S. hide and leather industries was optimistic at year-end 1987. A tight supply of hides and increased demand for leather from domestic manufacturers were anticipated to keep leather prices firm. The dollar price of imported leather was also expected to rise in 1988, allowing domestic leather to recapture much of the market share lost to imports since 1981.

World Production of Bovine Hides and Skins In Thousands of Units of Metric Tons

Year	Argentina	Australia	Brazil	Canada	Colombia	France	Germany		Mexico	Italy	Poland	South Africa	Turkey	New Zealand	United Kingdom	United States	USSR
							East	West									
1981	333	142	291	96		EC-10 (683)						52		44		987	890
1982	293	155	308	98	92	179	44	149	138	96	75	53	56	46	106	1,019	867
1983	286	160	322	99	84	200	45	149	140	99	70	61	59	44	109	1,040	892
1984	297	129	310	94	87	190	45	164	145	101	73	60	60	37	113	1,066	917
1985	319	124	340	95	92	190	48	159	139	101	71		61	41	110	1,028	942
1986	332	131	324	94	92	186	48	161	120	95	85		62	36	104	1,164	1,022
1987[1]	308	143	355	88	91	193	50	162	122	93	76		62	54	105	1,113	1,060

* Average [1] Preliminary. *Source: Foreign Agricultural Service, U.S.D.A.* T.289

Salient Statistics of Hides & Leather in the United States

Year	New Supply of Cattle Hides					Wholesale Prices–¢ lb.		Production		Upper & Lining Leather Exports	Wholesale Leather Prices		Footwear	
	Domestic Slaughter													
	Federally Inspected	Uninspected[4]	Total Production	Net Exports	Total New Supply	Heavy Native Cows[2]	Heavy Native[3] Steers	All U.S. Tanning	Cattle-Hide		Cattle Hide[5]	Upper[6]	Production[7]	Export
	Thousands of Equivalent Hides							In Ths. Equiv. Hides		Ths. Sq. Ft	1967 = 100		Mil. Pairs	
1981	32,819	2,134	34,953	18,701	16,252	46.1	44.2	19,784	15,520	192,193	319.8	214.4	372.0	9.7
1982	33,907	1,936	35,843	22,553	13,290	45.1	42.3	18,229	15,028	159,804	311.4	215.8	359.1	7.7
1983	34,816	1,833	36,649	21,205	15,444	53.5	50.2	18,610	15,430	155,808	330.7	223.4	344.3	6.2
1984	35,880	1,702	37,582	25,194	12,388	67.0	61.0	16,940	14,021	163,373	372.3	219.2	301.4	6.2
1985[1]	34,765	1,528	36,293	24,398	11,895	57.6	54.7	15,230	12,550	131,505	353.1	223.5	265.1	9.2
1986[1]	35,913	1,375	37,288	26,522	10,766			14,460	12,497	160,888	382.6	225.0	241.4	10.3

[1] Preliminary. [2] Heifers. [3] Central U.S. [4] Includes farm slaughter; diseased & condemned animals & hides taken off fallen animals. [5] Finished cattlehide & kipside leather; sheep & lamb leather. [6] Women's Leather Upper. [7] Other than rubber.
Sources: Leather Industries of America; Bureau of Labor Statistics; Dept. of Commerce T.290

U.S. Exports of Upper & Lining Leather In Thousands of Square Feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	17,364	15,308	16,408	16,720	18,899	21,427	14,160	19,726	16,224	17,438	17,947	17,176	208,799
1979	13,854	16,014	18,833	16,480	15,664	18,526	13,153	15,265	14,457	13,895	16,089	15,433	187,665
1980	15,769	16,873	18,710	13,024	12,652	15,483	15,481	15,215	15,818	19,051	20,880	13,641	192,597
1981	19,633	14,418	19,717	17,678	18,016	18,692	13,921	10,918	15,393	12,682	19,464	11,660	192,193
1982	10,849	10,343	13,696	15,534	17,449	18,610	18,486	12,065	10,417	11,842	9,726	10,786	159,804
1983	11,052	12,453	15,078	15,200	13,492	14,868	12,013	13,099	12,715	14,027	12,400	9,412	155,808
1984	13,624	13,015	17,787	14,772	19,514	14,294	12,907	14,046	11,219	11,533	10,231	10,431	163,373
1985[1]	10,266	8,855	11,023	11,637	12,112	16,233	9,919	10,763	8,085	12,310	12,452	7,824	131,505
1986[1]	12,032	10,849	13,050	13,652	14,560	13,945	11,902	16,769	11,502	13,043	14,003	15,581	160,888
1987[1]	12,172	15,625	19,865	18,874	18,318	19,585	15,455	15,015	14,806	13,557			

[1] Preliminary. *Source: Leather Industries of America* T.292

U.S. Production of All Footwear (Shoes, Sandals, Slippers, Athletic, Etc.) In Millions of Pairs

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	34.5	34.8	39.9	35.8	39.5	36.8	26.1	37.1	34.2	36.3	33.8	30.2	418.9
1979	37.3	34.9	38.7	33.4	37.3	31.9	25.4	33.9	31.1	35.0	31.3	28.7	398.9
1980	34.9	33.2	33.9	32.9	34.1	32.5	27.3	30.7	32.5	36.2	29.5	28.6	386.3
1981	31.1	30.4	34.1	32.6	31.6	30.0	26.8	30.4	32.6	34.7	30.3	27.4	372.0
1982	29.4	30.2	34.4	30.0	31.0	31.0	26.1	30.7	31.4	31.2	28.4	25.3	359.1
1983	28.1	32.1	31.8	27.3	30.3	28.8	22.8	30.7	29.7	29.4	28.0	25.2	344.3
1984	26.7	28.5	29.6	27.1	28.0	24.1	20.3	25.5	21.4	24.7	21.9	19.4	301.4
1985[1]	22.6	21.1	22.2	22.3	24.9	21.2	19.8	24.6	22.5	24.9	21.1	18.8	265.1
1986[1]	21.9	20.8	20.5	20.3	19.9	17.5	18.0	20.9	19.8	21.5	18.4	16.6	241.4
1987[1]	17.3	18.4	19.4	19.0	18.4	20.0	15.6	19.9	20.2				

[1] Preliminary. *Source: U.S. Department of Commerce* T.295

U.S. Imports and Exports of All Cattle Hides In Thousands of Hides

	Imports		U.S. Exports—By Country of Destination													
Year	Total	From Canada	Total	Canada	France	W. Germany	Japan	Mexico	Netherlands	Poland	Taiwan	Spain	Romania	Korea Repub.	Czech.	Italy
1978	704	694	24,791	1,093	555	379	8,797	1,938	211	349		1,019	1,942	3,720	586	1,284
1979	673	643	23,731	1,248	691	454	7,396	2,428	324	513		892	1,317	2,526	682	2,248
1980	880	859	19,512	1,046	238	206	7,476	1,972	164	522		112	1,046	2,653	318	690
1981	1,028	881	19,703	1,212	137	319	7,512	2,485	94	203		394	680	3,579	334	486
1982	658	592	23,175	1,041	478	671	6,469	1,882	280	790		643	939	4,572	415	1,395
1983	665	570	21,281	1,235	332	343	6,413	1,296	174	303		246	1,318	4,635	489	823
1984	711	669	25,029	1,072	292	252	7,334	1,858	221	319	2,697	242	1,032	5,423	669	1,170
1985	1,044	883	24,956	729	215	110	6,824	2,287	71	402	2,797	214	1,168	6,441	418	1,134
1986[1]	761	594	26,481	666	262	71	6,624	1,002	133	179	3,542	190	688	9,316	521	1,502

[1] Preliminary. *Source: Leather Industries of America* T.297

Average Factory Price of Footwear in the United States In Dollars Per Pair

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1978	8.50	8.39	8.76	9.35	9.51	9.37	9.41	8.66	9.40	9.37	9.61	10.31	9.20
1979	9.73	9.84	9.68	10.23	10.00	10.48	11.74	10.31	10.30	10.46	11.15	11.47	10.60
1980	11.67	11.83	11.81	12.27	12.16	11.37	11.40	11.94	11.08	11.25	11.45	11.41	11.63
1981	11.67	11.93	12.52	12.72	13.09	13.16	13.01	13.14	13.22	12.90	12.67	12.58	12.52
1982	12.96	12.32	12.49	12.74	12.76	13.30	14.13	13.34	13.12	13.10	13.56	14.08	13.14
1983	12.88	13.72	13.18	13.54	14.20	13.57	12.91	14.14	14.06	15.02	14.69	15.55	13.96
1984	14.95	14.19	14.00	14.99	15.20	14.43	14.88	14.59	15.11	14.56	15.00	15.62	14.79
1985	15.24	14.97	14.10	14.87	14.86	15.35	14.24	14.55	14.12	13.71	13.56	15.13	14.56
1986	14.60	13.86	13.82	14.22	15.00	14.98	15.53	14.38	14.64	14.38	14.40	16.50	14.69
1987[1]	16.40	15.85	15.27	16.47	16.58	16.31	17.19	16.27	16.35				

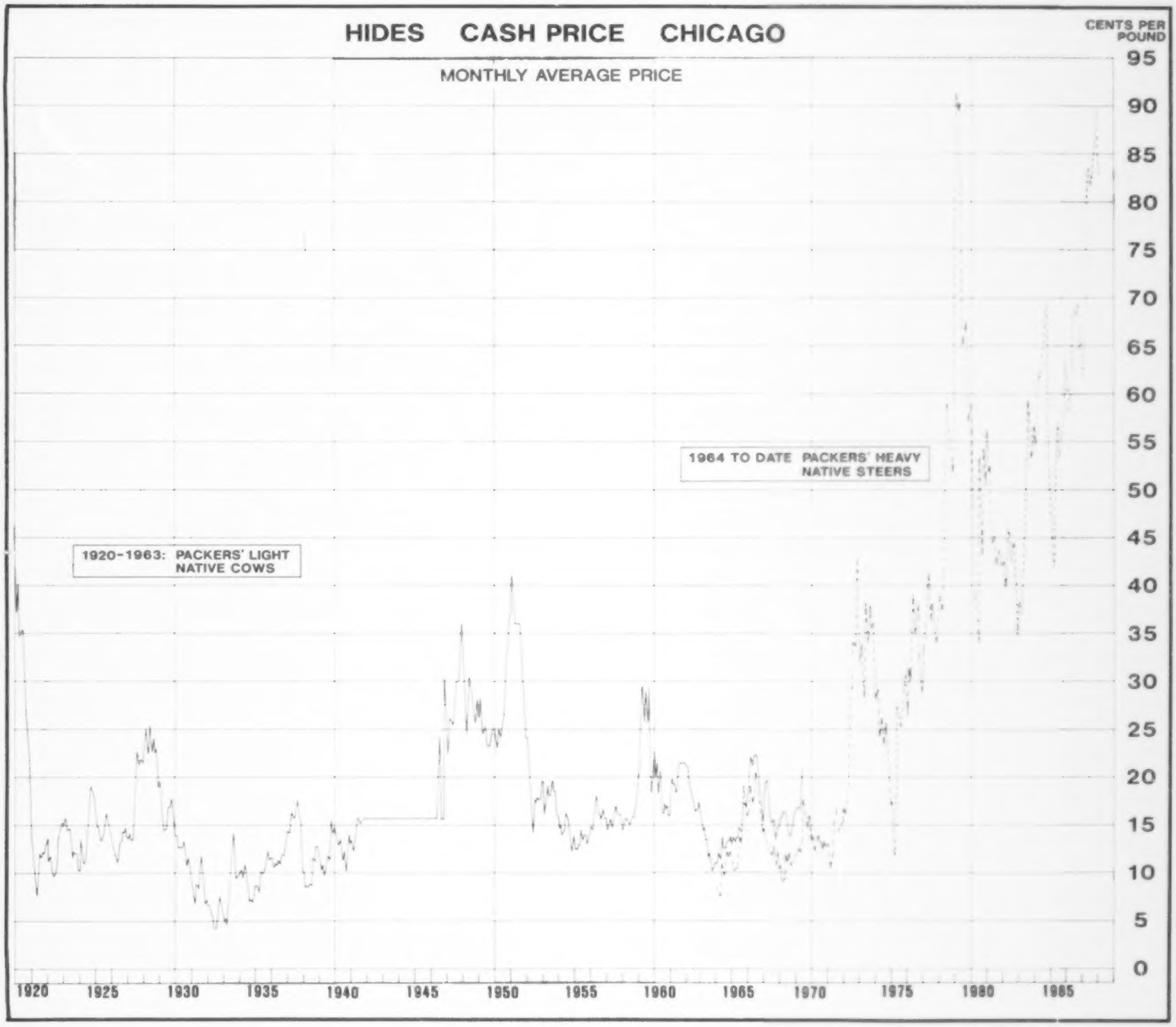
[1] Preliminary. *Source: Leather Industries of America* T.298

HIDES AND LEATHER

Index Price[2] of Hides (Packer Heavy Native Steers[1])—F.O.B. Shipping Point 1967 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1975	11.8	12.5	16.3	27.5	25.3	25.8	25.3	25.3	25.8	28.0	30.8	26.3	23.4
1976	31.5	29.8	30.0	34.9	39.0	34.8	36.3	37.3	38.3	31.8	29.0	32.3	33.8
1977	35.8	36.3	37.3	40.1	41.3	36.3	38.1	36.8	34.8	33.8	34.8	38.0	37.0
1978	38.8	37.8	37.3	41.3	41.8	45.8	47.8	53.0	59.0	57.3	54.8	51.8	47.2
1979[2]	506.4	548.4	766.9	750.1	760.2	696.3	653.0	594.6	549.2	568.9	498.5	480.1	614.4
1980	496.7	409.3	331.5	320.5	283.6	321.0	369.0	448.0	361.4	412.9	455.9	420.6	385.9
1981	375.1	344.1	356.1	405.8	385.8	364.9	351.7	373.6	344.3	347.7	347.2	343.4	361.6
1982	353.6	346.0	325.8	339.3	353.5	342.1	342.1	349.7	343.5	336.4	324.7	312.9	339.1
1983	313.9	315.0	329.6	345.0	378.6	386.8	434.2	N.A.	447.5	450.2	469.9	489.6	396.4
1984	479.0	469.5	486.4	470.4	530.6	558.9	515.9	543.3	597.5	559.8	386.0	391.5	499.1
1985	416.2	378.5	370.8	466.8	494.4	490.7	465.5	428.6	N.A.	N.A.	N.A.	N.A.	435.1
1986	506.5	508.5	502.8	520.0	524.8	531.6	526.1	506.8	497.9	514.2	532.1	542.5	517.8
1987[3]	534.7	538.5	563.5	602.5	663.5	650.2	642.5	643.7	663.1	685.7			

[1] Over 53 pounds. [2] Data prior to 1979 are in *cents per pound*. [3] Preliminary. *Source: Bureau of Labor Statistics (0411-0111.99)* T.296



Hogs

In the 1980s, farmers greatly increased the number of pigs produced per breeding animal. The rise resulted from more pigs per litter and a higher percentage of the breeding herd farrowing. From December 1986-May 1987, producers saved 7.8 pigs per litter, compared with 7.2 from December 1979-May 1980. About 83 percent of the December 1, 1986 breeding inventory was farrowing, versus 75 percent of the December 1, 1979 breeding inventory. Pigs produced per breeding animal rose 19 percent over the 7-year period, due to better, more intensive management as production units became larger and more specialized. Genetics also played a part.

The June 1, 1987 hogs and pigs report showed producers expanding breeding herds and planning to increase farrowings. From December 1986-February 1987, farrowing sows rose 4 percent, the first significant quarterly year-over-year jump since June-August 1983. This was in response to the high producer profits since mid-1986. The June 1 U.S. inventory of all hogs and pigs was 52.3 million, up 7 percent from a year earlier. The breeding herd, at 7.03 million, was up 10 percent. The market hog inventory totaled 45.3 million, up 7 percent. The December-May pig crop was 43.2 million, 7 percent more, and the number of sows farrowing in December-May was 5.54 million, 6 percent more than a year earlier.

Fourth-quarter 1987 pork production was forecast at 3.9 billion pounds, 7 percent above a year earlier. The fourth-quarter hog slaughter was drawn principally from the June 1 inventory of market hogs weighing under 60 pounds, which was up 8 percent from June 1986. Commercial pork production was expected to total about 14.2 billion pounds for all of 1987, up 2 percent from 1986. Commercial slaughter was about 80.5 million head, up 1 percent, with the average dressed weight slightly higher than the previous year's 176 pounds.

For 1987, retail pork prices were estimated to have averaged slightly above 1986's $1.79 a pound, but they were expected to decline 5-9 percent in 1988.

Despite large 1987/88 corn supplies, lower net returns to producers were expected to slow hog expansion. The December-May pig crop was expected to be up 7-9 percent, with pigs saved per litter remaining high. Commercial production was forecast to increase 7-9 percent in second-half 1988 over the same period in 1987. Hog prices were projected in the high $30s to low $40s per cwt. in 1988, compared to about $50-$52 in 1987. Pork production was forecast to be sharply higher, with beef output declining moderately. Higher poultry output was expected to continue to pressure hog prices.

Futures Markets

Live hog futures are traded on the Chicago Mercantile Exchange (CME) and the MidAmerica Commodity Exchange. Options also are traded on the CME contract.

World Hog Numbers in Specified Countries as of January 1 In Millions of Head

Year	Brazil	Canada	Denmark	France	W. Germany	Hungary	Italy	Japan	Mexico	Philippines	Poland	Spain	China[3]	Un. Kingdom	United States	USSR	World
1981	35.0	10.2	9.7	11.7	22.6	8.3	8.9	10.1	15.4	7.6	18.7	11.0	305.4	7.8	64.5	73.4	708.7
1982	33.5	10.0	9.8	11.8	22.3	8.3	9.0	10.0	16.2	7.6	19.1	10.7	293.7	7.9	58.7	73.3	693.5
1983	33.5	10.1	9.5	11.7	22.5	9.0	9.1	10.3	16.5	8.0	17.6	11.7	300.8	8.2	54.5	76.7	701.5
1984	30.0	10.7	9.0	11.3	23.4	9.8	9.2	10.4	13.1	7.6	15.9	12.1	298.5	7.8	56.7	78.7	701.7
1985	30.0	11.0	9.0	11.0	23.6	9.2	9.0	10.7	12.3	7.3	17.2	11.8	306.8	7.8	54.1	77.9	706.8
1986	30.5	10.7	9.1	11.0	24.3	8.3	9.1	11.1	13.1	7.3	19.2	15.8	331.4	7.9	52.3	77.8	736.4
1987[1]	31.7	10.8	9.4	12.0	24.5	8.7	9.3	11.4	12.4	7.0	19.6	15.8	336.9	8.0	51.2	79.4	749.1
1988[2]	32.7	11.3	9.5	13.6	24.3	8.8	9.4	11.6	11.4	7.0	18.8	15.7	329.3	7.9	55.5	78.0	748.7

[1] Preliminary. [2] Forecast. [3] Mainland. *Source: Foreign Agricultural Service, U.S.D.A.* T.300

Salient Statistics of Pigs and Hogs in the U.S.

	Pig Crop					Value of Hogs on Farms, Dec. 1					Hogs Slaughtered in Thousand Head				
	Spring[2]		Fall[3]								Commercial				
Year	Sows Farrowed	Pigs Saved	Sows Farrowed	Pigs Saved	Total Pig Crop	$ Per Head	Total Million $	Hog Marketings Ths. Head	Quantity Produced (Live Wt.) Mil. Lbs.	Value of Production Mil. $	Federally Inspected	Other	Total	Farm	Total
	In Thousands of Head														
1981	6,440	47,605	6,268	46,248	93,853	70.10	4,114	95,986	21,813	9,532	87,851	3,724	91,575	895	92,470
1982	5,664	41,575	5,884	43,614	85,189	89.90	4,903	86,972	19,658	10,297	79,328	3,861	82,190	655	82,845
1983	6,301	47,409	6,176	45,746	93,155	58.80	3,331	89,129	21,195	9,899	84,762	2,823	87,584	517	88,101
1984	5,694	42,403	5,857	44,183	86,586	75.00	4,056	87,344	20,196	9,498	82,478	2,690	85,168	473	85,641
1985	5,571	42,545	5,667	43,476	86,029	69.60	3,640	86,583	20,133	8,859	81,974	2,519	84,492	446	84,938
1986[1]	5,246	40,392	5,423	41,997	82,389	91.60	4,669				77,000	2,200	79,598		
1987[4]	5,538	43,135	5,774	44,668	87,803						78,000	2,000	80,000		
1988[4]	5,815	45,357													

[1] Preliminary. [2] December–May. [3] June–November. [4] Estimate. *Source: Statistical Reporting Service, U.S.D.A.* T.302

HOGS

Hogs and Pigs on U.S. Farms on December 1 In Thousands of Head

Year	Georgia	Illinois	Indiana	Iowa	Kansas	Kentucky	Minnesota	Missouri	Nebraska	No. Carolina	Ohio	South Dakota	Tennessee	Wisconsin	Total
1981	1,520	6,450	4,100	16,300	1,770	1,040	4,300	3,400	4,100	1,980	2,050	1,710	900	1,380	58,698
1982	1,450	5,600	4,400	14,400	1,670	960	4,000	3,500	3,800	2,150	1,920	1,580	750	1,220	54,534
1983	1,350	5,400	4,200	15,000	1,650	1,000	4,400	3,600	4,000	2,350	2,200	1,730	950	1,280	56,694
1984	1,200	5,400	4,300	14,200	1,600	880	4,300	3,450	3,700	2,300	1,970	1,600	1,100	1,300	54,073
1985	1,150	5,400	4,150	13,500	1,520	800	4,100	3,050	3,900	2,350	1,980	1,610	950	1,250	52,313
1986[1]	1,100	5,100	4,150	12,600	1,450	880	4,260	2,900	3,950	2,360	2,000	1,520	770	1,330	51,160

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.301

Quarterly 10—U.S. State Hogs & Pigs Report In Thousands of Head

Year[2]	Inventory[1]	Breeding[1]	Market[1]	Farrowings	Pig Crop	Year	Inventory[1]	Breeding[1]	Market[1]	Farrowings	Pig Crop
1984	42,420	5,348	37,072	9,020	67,680	1986[3]	39,870	5,155	34,715	8,208	63,714
I	44,150	5,638	38,512	1,964	14,288	I	41,100	5,258	35,842	1,863	14,254
II	40,070	5,446	34,624	2,481	18,814	II	38,210	4,948	33,262	2,161	16,878
III	41,915	5,771	36,144	2,259	17,158	III	37,845	4,840	33,005	2,034	15,853
IV	43,180	5,550	37,630	2,316	17,420	IV	39,335	4,840	34,495	2,150	16,729
1985	41,100	5,258	35,842	8,831	67,648	1987					
I	42,420	5,348	37,072	1,935	14,690	I[3]	39,870	5,155	34,715	1,957	15,156
II	39,680	5,220	34,460	2,420	18,762	II[3]	39,235	5,230	34,005	2,337	18,485
III	41,650	5,397	36,253	2,191	16,941	III[3]	40,580	5,290	35,290	2,262	17,520
IV	41,820	5,377	36,443	2,265	17,255	IV[3]	42,825	5,295	37,530	2,307	

[1] Beginning of period. [2] Quarters are Dec. preceding year—Feb. (I), Mar.–May (II), June–Aug. (III), & Sept.–Nov. (IV). [3] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.181a

U.S. Federally Inspected Hog Slaughter In Thousands of Head

Week ended	1984	1985	1986	1987	Week ended	1984	1985	1986	1987
Jan. 1[1]	1,350	1,238	1,153	1,069	June 29	1,438	1,476	1,329	1,356
5	1,418	1,295	1,250	1,258	July 6	1,105	1,171	1,118	1,193
12	1,708	1,679	1,635	1,683	13	1,445	1,523	1,390	1,360
19	1,625	1,615	1,654	1,659	20	1,378	1,427	1,345	1,345
26	1,577	1,528	1,563	1,527	27	1,305	1,400	1,280	1,354
Feb. 2	1,543	1,565	1,506	1,500	Aug. 3	1,382	1,474	1,312	1,330
9	1,571	1,582	1,526	1,455	10	1,406	1,556	1,338	1,372
16	1,578	1,508	1,512	1,502	17	1,409	1,524	1,367	1,445
23	1,579	1,539	1,501	1,395	24	1,479	1,531	1,385	1,404
Mar. 2	1,656	1,608	1,606	1,533	31	1,502	1,601	1,419	1,475
9	1,791	1,635	1,635	1,555	Sept. 7	1,396	1,429	1,257	1,548
16	1,691	1,638	1,650	1,577	14	1,657	1,690	1,492	1,363
23	1,681	1,647	1,556	1,573	21	1,679	1,667	1,504	1,709
30	1,695	1,642	1,579	1,500	28	1,679	1,681	1,503	1,620
Apr. 6	1,695	1,569	1,518	1,529	Oct. 5	1,699	1,644	1,515	1,658
13	1,728	1,623	1,633	1,553	12	1,701	1,686	1,546	1,638
20	1,642	1,676	1,651	1,498	19	1,754	1,620	1,529	1,739
27	1,588	1,662	1,637	1,393	26	1,736	1,654	1,551	1,687
May 4	1,635	1,702	1,619	1,453	Nov. 2	1,754	1,668	1,580	
11	1,664	1,699	1,606	1,475	9	1,742	1,654	1,576	
18	1,579	1,705	1,560	1,440	16	1,681	1,654	1,537	
25	1,578	1,580	1,518	1,445	23	1,446	1,697	1,557	
June 1	1,367	1,361	1,307	1,226	30	1,812	1,328	1,308	
8	1,591	1,592	1,471	1,383	Dec. 7	1,792	1,656	1,530	
15	1,541	1,561	1,459	1,372	14	1,692	1,566	1,548	
22	1,431	1,535	1,373	1,341	21	1,687	1,655	1,503	
					28	1,238	1,153	1,070	

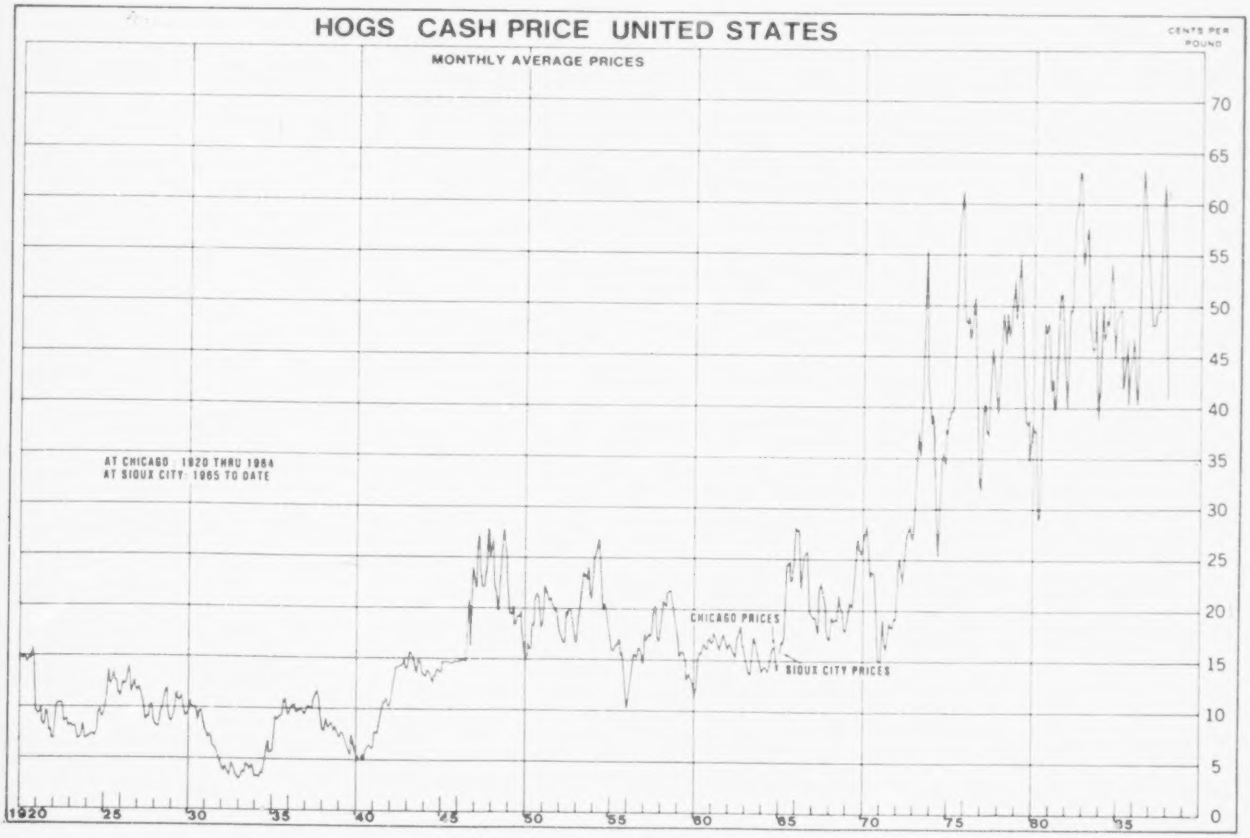
[1] Corresponding dates—1984: Dec. 31, 1983; 1985: Dec. 29, 1984; 1986: Dec. 28, 1985; 1987: Dec. 27, 1986. *Source: Economic Research Service, U.S.D.A.* T.181b

High, Low & Closing Prices of June Live Hogs Futures at Chicago In Cents per Pound

Year of Delivery		Year Prior to Delivery									Delivery Year						Life of Delivery Range
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan	Feb.	Mar	Apr.	May	June	
1984	High	47.75	47.75	46.50	50.50	56.00	55.00	52.15	54.25	53.75	56.00	53.20	57.27	58.00	56.20	54.80	58.00
	Low	46.75	45.40	43.90	43.80	48.90	49.90	49.00	52.20	52.00	52.30	50.40	51.30	54.20	51.35	51.47	43.80
	Close	46.75	45.80	45.15	49.80	53.55	50.05	51.97	53.55	53.05	52.75	51.70	56.12	54.42	51.60	54.17	—
1985	High	53.75	55.20	55.40	54.40	53.15	53.25	51.10	53.67	54.95	54.95	54.22	52.90	49.97	49.20	50.10	55.40
	Low	52.62	53.65	52.60	50.10	50.80	48.65	48.40	50.70	50.25	53.05	50.65	49.05	46.15	44.40	46.70	44.40
	Close	53.60	54.32	54.15	51.00	52.70	48.77	50.95	52.95	54.57	53.85	51.65	49.57	46.30	47.95	49.35	—
1986	High	48.95	48.65	49.00	47.60	44.40	43.75	43.97	44.70	46.45	47.00	45.50	45.90	46.87	50.10	59.72	59.72
	Low	47.55	46.80	46.90	41.75	40.05	39.80	42.25	42.20	43.25	43.65	42.10	42.05	40.25	45.52	49.75	39.80
	Close	48.70	48.25	47.75	43.57	40.82	43.00	42.65	44.65	45.85	45.27	42.80	43.82	46.60	49.77	59.65	—
1987	High	43.30	44.75	46.67	48.00	49.50	59.20	49.40	48.70	49.10	47.85	48.25	48.85	54.80	58.85	64.10	64.10
	Low	39.90	39.90	40.60	43.80	46.10	41.20	46.00	45.45	45.50	44.90	44.60	45.60	46.45	52.60	57.85	37.50
	Close	40.97	40.85	44.95	47.45	47.45	48.25	46.70	48.47	45.62	47.82	45.50	47.82	53.47	58.17	64.00	—
1988	High	41.50	43.00	43.72	44.65	45.05	45.30	44.50	43.15	42.70							
	Low	38.50	40.65	40.70	42.15	43.65	42.72	41.25	41.35	40.25							
	Close	40.95	42.45	41.20	44.55	44.70	43.30	41.82	41.85	42.00							

Source: Chicago Mercantile Exchange

T.308



HOGS

Average Price Received by Farmers for Hogs in the U.S. In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average[1]
1984	48.40	45.40	45.80	47.50	47.20	49.00	52.00	50.50	46.30	43.60	47.00	48.60	47.61
1985	48.00	48.30	43.60	41.20	41.40	44.60	45.70	42.50	39.70	43.10	43.20	45.30	43.88
1986[2]	44.30	42.80	40.40	39.70	45.80	52.60	59.00	62.10	58.30	53.10	52.80	50.60	50.10
1987[2]	47.20	48.20	47.40	50.80	54.40	60.30	59.60	58.60	54.30	48.90	40.60	40.80	50.93

[1] Weighted average by quantities sold. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.306

Average Wholesale Price of Hogs, Average (All Weights) at Sioux City In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	50.14	46.68	47.36	48.69	48.22	50.04	54.25	52.57	47.86	45.01	48.55	49.03	49.03
1985	49.60	49.55	44.54	41.85	42.70	45.67	47.09	43.91	40.42	44.20	44.46	47.11	44.98
1986	45.60	43.80	41.08	40.59	46.43	54.95	61.59	63.66	59.59	54.86	54.44	52.02	50.73
1987	47.56	49.08	48.67	52.10	55.79	61.37	62.69	60.56	55.19	49.28			

Source: Department of Agriculture T.307

Hog-Corn Price Ratio[1] at Omaha

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	16.0	15.3	14.5	14.5	14.3	14.8	16.6	16.8	16.0	16.4	18.4	19.6	16.1
1985[2]	18.8	18.7	16.4	15.2	15.7	16.9	17.9	18.2	17.1	19.5	19.3	19.8	17.8
1986[2]	19.0	19.0	17.6	17.2	19.5	22.4	30.3	39.3	42.9	39.0	34.7	33.4	27.8
1987[2]	32.7	35.1	32.6	32.7	31.6	34.3	38.4	41.3	36.3				

[1] Ratio computed by dividing average price packer and shipper purchases of barrows and gilts by average price No. 2 yellow corn both at Omaha. This ratio represents the number of bushels of corn required to buy 100 pounds of live hogs. [2] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.304

Cold Storage Holdings of Frozen Pork[1] in the U.S. on First of Month In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	300.6	295.1	311.7	350.7	390.4	437.7	405.2	345.0	269.5	256.6	275.6	269.4
1985	274.3	291.9	286.3	314.1	368.2	410.3	385.0	343.1	294.7	277.0	277.5	265.0
1986[2]	229.4	235.4	239.1	253.5	282.0	275.6	247.7	214.9	184.7	185.9	215.8	206.2
1987[2]	197.1	217.7	228.5	221.3	217.8	218.8	189.1	181.1	175.1	186.4	212.2	249.2

[1] Excludes lard. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.303

Federally Inspected Hog Slaughter in the United States In Thousands of Head

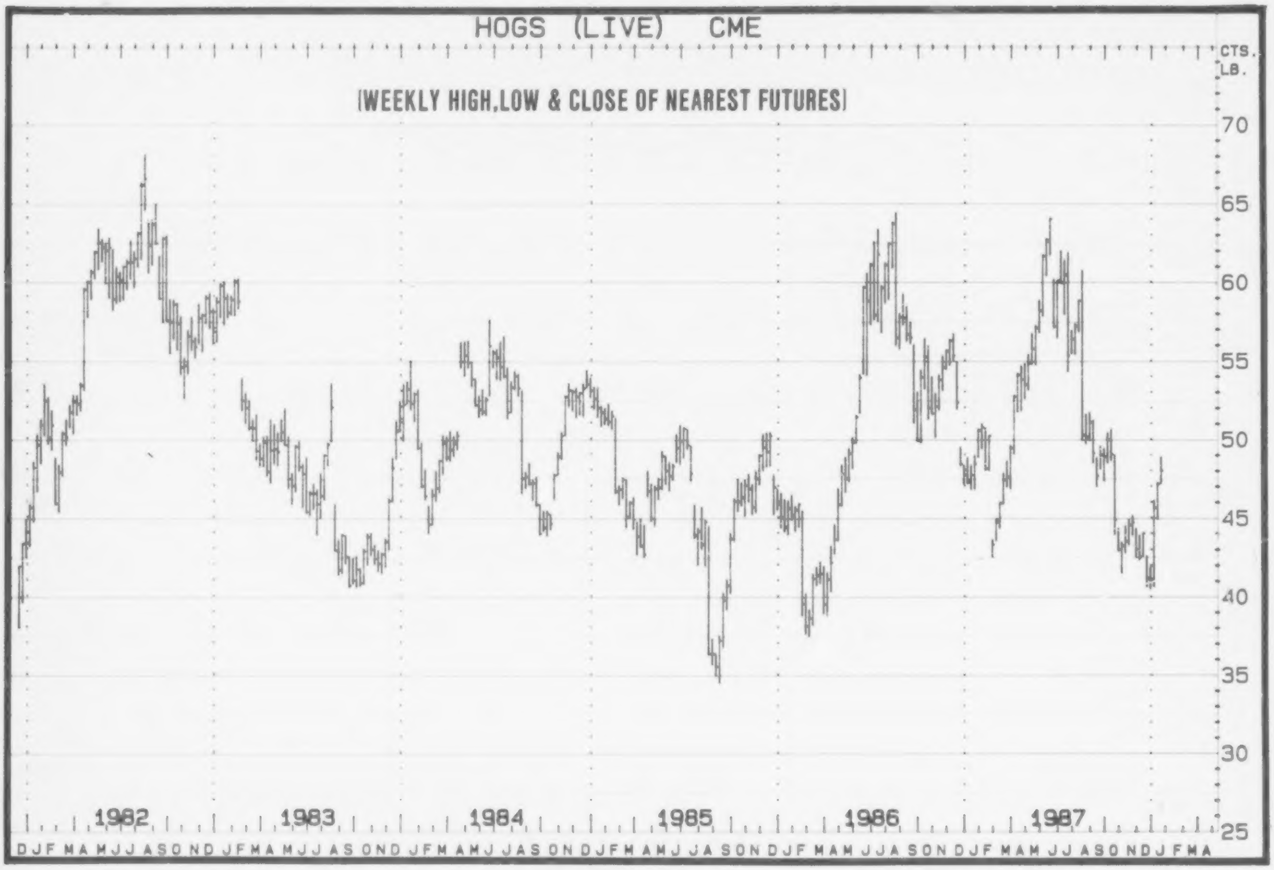
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	6,947	6,591	7,578	6,953	7,153	6,392	5,806	6,628	6,439	7,908	7,354	6,729	82,478
1985[1]	7,114	6,208	6,932	7,177	7,359	6,209	6,399	6,810	6,738	7,566	6,818	6,640	81,974
1986[1]	6,968	6,158	6,662	7,160	6,703	5,894	5,918	5,799	6,323	7,083	6,064	6,558	77,290
1987[1]	6,723	5,886	6,786	6,492	5,916	5,987	6,019	6,018	6,855	7,542			

[1] Preliminary. *Source: Statistical Reporting Service, U.S.D.A.* T.305

Average Live Weight of All Hogs Slaughtered Under Federal Inspection In Pounds Per Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average[1]
1984[2]	242	241	240	243	246	247	245	242	240	243	246	244	243.5
1985[2]	245	242	242	245	247	248	245	243	242	246	248	247	245.0
1986[2]	246	244	244	245	246	245	245	244	245	248	250	252	246.2
1987[2]	251	248	246	247	247	248	246	244	246				

[1] Average is weighted by federally inspected slaughter. [2] Preliminary. *Source: Department of Agriculture* T.311



Month–End Open Interest of Live Hogs Futures at Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1979	26,338	27,694	25,613	24,204	27,004	30,108	24,544	25,730	26,155	24,313	26,317	24,966
1980	27,387	27,765	21,857	24,795	25,814	29,011	27,635	28,725	31,696	36,962	38,534	26,816
1981	21,267	21,588	20,767	28,147	31,149	26,639	19,557	20,944	23,471	21,945	22,294	17,924
1982	27,528	29,960	43,387	51,056	63,760	46,002	42,884	51,530	48,263	48,751	47,067	43,791
1983	45,184	41,338	39,469	31,915	31,014	30,794	27,173	33,668	33,425	30.049	30,071	33,820
1984	33,049	35,159	35,289	33,122	34,148	30,517	23,579	24,061	21,048	20,689	26,975	24,037
1985	29,917	27,827	25,738	23,673	22,919	24,807	18,289	19,984	18,390	25,447	27,912	21,680
1986	22,125	21,639	17,123	19,037	25,497	26,878	32,704	32,643	32,479	27,447	30,980	23,620
1987	26,472	29,973	29,961	30,406	35,328	30,485	30,336	32,489	32,347	24,111	26,017	23,740

Source: Chicago Mercantile Exchange T.309

Volume of Trading of Live Hogs Futures at Chicago In Thousands of Contracts

Year	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	143.1	137.9	185.4	132.0	145.1	160.9	144.1	164.5	151.3	154.1	162.9	124.5	1,805.7
1980	152.9	122.3	138.3	158.8	133.8	170.8	189.7	188.6	239.1	258.1	195.3	201.4	2,153.8
1981	174.8	182.0	197.5	212.0	230.7	262.9	179.8	153.9	171.9	178.6	160.2	153.7	2,258.1
1982	178.7	195.6	262.6	222.6	288.0	408.3	300.1	344.5	347.2	383.4	324.9	305.1	3,561.0
1983	291.6	254.7	213.8	230.6	254.1	262.1	217.4	279.9	220.8	174.2	197.5	194.2	2,790.7
1984	232.2	212.7	243.8	172.3	211.0	192.6	189.2	143.9	109.1	140.7	181.0	140.5	2,169.0
1985	155.0	128.3	160.2	141.7	156.2	141.9	134.7	120.2	136.1	156.8	145.2	143.5	2,719.9
1986	156.3	108.5	113.7	153.6	157.4	160.8	224.3	168.8	196.5	183.4	171.0	142.5	1,936.7
1987	159.2	138.5	172.7	190.3	189.7	212.1	219.5	169.8	174.0	175.5	121.1	118.0	2,040.5

Source: Chicago Mercantile Exchange T.310

Honey

Total honey output for selected major producing countries in 1987 was forecast at 669,000 tonnes, up 1 percent from 1986. Together these countries produce about 60 percent of the world's honey. The USSR, the largest producer, harvested about 190,000 tonnes, or 20,000 less than in 1986. The decline was attributed to an unusually severe winter and late spring. Chinese production was expected to rise to 170,000 tonnes, from 160,000 in 1986; the increase was attributed to strong prices and a growing domestic market. Mexican production was expected to decline by 5,000 tonnes to 49,000 tonnes in 1987. Drought in the Yucatan and low rainfall in the states of Michoacan, Jalisco and Veracruz adversely affected output. Production increases were anticipated in Australia and Brazil.

U.S. production in 1987 was estimated at 102,000 tonnes, up 12 percent, due to yield increases in most major producing states. Consumption was projected at 145,000 tonnes, compared with 132,000 in 1986. This rise necessitated a drawdown of existing stocks; stocks were expected to fall to 94,000 tonnes by the end of 1987, from 115,000 a year earlier. U.S. imports were forecast to decline from 59,000 tonnes in 1986 to 29,000 in 1987, contributing to the decline in inventories. The implementation of a reduced loan payback program in July 1986 helped cut U.S. honey imports by over 50 percent, while allowing exporters to increase their shipments to more than double the previous year's level.

The Food Security Act of 1985 authorized a price-support loan program for honey. The 1987 national average support price was 63 cents/lb., down 1 cent from 1986. The lower loan repayment option was authorized under the Act for any of the 1986-1990 crops. Under the provision, producers with price-support loans for any crop year in which the option is in effect are permitted to repay their loans at the lesser of the loan level or a level which the Secretary of Agriculture determines will minimize government expenditures and maintain the price competitiveness of U.S. honey. The loan repayment levels for the 1987 crop ranged from 40 cents/lb. to 34 cents/lb., depending on class and color.

World Production of Honey In Thousands of Metric Tons

Year	Argentina	Australia	Brazil	Canada	China (Mainland)	Ethiopia	France	West Germany	Japan	Mexico	Poland	Spain	Turkey	United States	U.S.S.R.	World Total
1977	22.0	14.9	14.0	25.4	60.0	19.0	8.2	20.0	6.2	60.0	10.0	12.0	21.7	81.0	208.0	798.3
1978	35.0	18.6	16.0	30.6	75.0	20.0	9.5	15.0	8.5	54.0	12.0	11.0	21.7	104.5	179.0	827.7
1979	30.0	25.0	18.0	32.9	110.0	20.0	14.4	9.9	7.5	52.0	13.0	12.0	23.7	107.8	189.0	880.1
1980	33.0	19.5	20.0	29.2	81.0	20.5	12.0	13.5	6.2	60.0	10.0	13.0	23.0	90.6	183.0	837.4
1981	30.0	24.8	24.0	32.9	110.0	21.0	10.0	14.0	6.0	60.0	10.0	13.0	23.0	84.3	184.0	873.8
1982	33.0	22.4	25.0	30.5	136.0		25.0	18.0	7.4	45.0				104.3	186.0	908.8
1983	30.0	25.0	25.0	38.8	143.3			19.0	6.9	68.0				93.0	210.0	970.0
1984[1]	35.0	28.0	26.5	43.3	147.5			16.0	6.8	60.0				75.0	193.0	945.0
1985[1]	45.0	25.0	28.0	35.2	150.0			11.0	7.2	52.0				68.0	190.0	940.0
1986[1]	25.0	27.3	26.9	37.8	150.0			18.0	5.0	47.0				91.0	190.0	950.0
1987[1]	35.0	28.0	34.0	39.0	170.0			13.0	6.8	49.5				102.0	190.0	

[1] Preliminary. *Source: Foreign Agricultural Service, U.S.D.A.* T.312

Salient Statistics of Honey in the United States

Year	Number of Colonies Thous.	Yield Per Colony Lbs.	Honey Production; By States								Domestic Disapp.	Imports For Consumption	Domestic Exports	Stocks Jan. 1	Extracted Florida Extra Light[2]	National Average Price Support	Per Capita Consumption Lbs.
			Total U.S.	California	Florida	Iowa	Minnesota	So. Dak.	Texas	Wisconsin							
			In Millions of Pounds												¢ Lb.		
1977	4,346	41.0	178.1	13.7	14.4	6.1	12.0		9.0	9.6	240.8	63.9	5.5	34.3	40.6	32.7	1.09
1978	4,081	56.7	231.5	31.2	23.9	4.6	13.9		8.7	6.3	277.3	56.0	8.0	30.0	45.1	36.8	1.25
1979	4,155	57.4	238.7	17.1	27.3	6.6	15.8	17.3	11.4	8.8	282.7	58.6	8.8	32.2	50.2	43.9	1.26
1980	4,140	48.3	199.8	23.2	20.3	6.3	13.7	8.1	6.9	6.0	226.2	49.0	8.5	38.0	49.7	50.3	.99
1981[1]	4,213	44.1	185.9	9.0	24.1	3.4	8.2	9.2	11.4	4.1	232.0	77.3	9.2	52.1	52.7	57.4	1.01
1982[1]	4,250	54.1	230.0								250.8	92.0	8.5	74.1	54.5	60.4	1.08
1983[1]	4,275	48.0	205.0								277.9	109.8	7.5	136.8		62.2	1.19
1984[1]	4,300	38.4	165.1								251.8	124.0	7.6	214.8		65.8	
1985[1]	4,325	34.7	150.1								256.1	141.0	6.7	243.1		65.3	
1986[3]	3,205	62.0	200.4	27.0	21.8	2.4	10.6	22.7	7.3	4.3	292.1	130.4	7.4	274.2		64.0	
1987[3]	3,190	71.1	226.8	16.5	19.0	4.5	16.2	33.5	8.1	8.1						63.0	

[1] Preliminary. [2] Amber, to Water White, Orange. [3] Forecast. *Source: Crop Reporting Board, U.S.D.A.* T.313

Interest Rates

Interest rate cycles, which once lasted as long as the business cycle, sped up dramatically in 1987, as shown by the Treasury yield curve chart included in this section. The level and the slope of the yield curve responded dramatically to perceived and/or expected changes in the economy in 1987. The dollar weakened sharply, raising fears of an increase in inflation. Long-term rates rose sharply in the spring, but short-term rates were almost unchanged, reflecting both the government's need to pay higher interest rates to attract buyers for long-term bonds and concern that higher prices for commodities were starting an inflationary spiral. Investors avoided long bonds and their absence drove rates higher, particularly for mortgages.

During the summer, short-term rates caught up, flattening the rising yield curve. The U.S. trade deficit and consumer spending were viewed as evidence of impending demand-pull inflation. It was widely noted that high-quality long-term debt was selling at historically wide premiums to the yield on the stock market, a situation that has signaled a stock market top. In August, 30-year bonds were unwanted. However, the stock market crash drastically changed that.

Rates for long-term government bonds reached almost 10.5 percent on the morning of October 19, but the ill wind in the equities market blew fresh life into the government debt market. As the Dow plunged, corporate debt became almost impossible to sell, the Eurobond market ground to a halt, and there were few bidders for the junk bonds issued during the bull-market takeover binge. But by that afternoon, the flight from equities encouraged a global panic into government debt. Fears of an economic collapse replaced inflation concerns. A record $9.64 billion fled into U.S. money-market funds in the week ended October 21; this drove 3-month T-bills to a yield of 4.96 percent, steepening the yield curve dramatically. The T-bill/Eurodollar spread widened on credit concerns, and as the yield curve for October 23 shows, long bond yields fell spectacularly.

Fears of recession created a panic to buy government bonds. London's gilt market soared, Japanese bonds recovered, and West German securities also gained, leaving rate differentials about where they were before the U.S. rally started.

In 1929, the Fed responded to the financial crunch by contracting credit, saving itself instead of the banking system. Then, President Hoover attempted to balance the budget by raising taxes, when people had less to spend. To protect American jobs and industries, Congress passed the Smoot-Hawley tariffs, touching off a global trade war. By 1932, the U.S. money supply had fallen by 25 percent, and the world was in the Depression. In 1987, Congress debated trade-war legislation and enacted laws, with the Reagan Administration's approval, to cut the fiscal 1988 deficit by $33 billion. Fears of a recession dominated forecasts issued after the crash. However, Fed Chairman Greenspan promptly announced that the Fed would provide whatever liquidity the bank system needed.

On September 4, the Fed had raised the discount rate to 6 percent in a move to steady the dollar, which was seen by many Fed watchers as too little and too late. They wanted at least 6.5 percent to restore confidence in containing inflation. But the actual rate of inflation was subdued; producer prices increased only 2.2 percent for all of 1987.

As the year ended, three-month T-bills were yielding 5.73 percent and 30-year government bonds yielded 9.05 percent. For 1988, the Reagan Administration was forecasting a three-month bill average rate of 5.3 percent and a 10-year note rate of 8 percent.

U.S. Producer Commodity Price Index (Wholesale, All Commodities) 1967 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct	Nov	Dec.	Average
1982	298.3	298.6	298.0	298.0	298.6	299.3	300.4	300.2	299.3	299.8	300.3	300.7	299.3
1983	299.9	300.9	300.6	300.6	301.5	302.4	303.2	304.7	305.3	306.0	305.5	306.1	303.1
1984	308.0	308.9	311.0	311.3	311.5	311.3	311.9	310.7	309.3	309.4	310.3	309.8	310.3
1985	309.5	309.1	308.6	309.3	309.8	309.2	309.0	307.3	305.5	307.9	309.5	310.2	308.7
1986	308.9	304.4	300.3	298.2	299.2	299.0	297.4	297.2	297.5	298.4	298.7	298.5	299.8
1987[1]	300.9	302.2	302.7	305.0	307.1	308.2	310.2	310.5	310.4	311.4			

[1] Preliminary. *Source: Bureau of Labor Statistics*

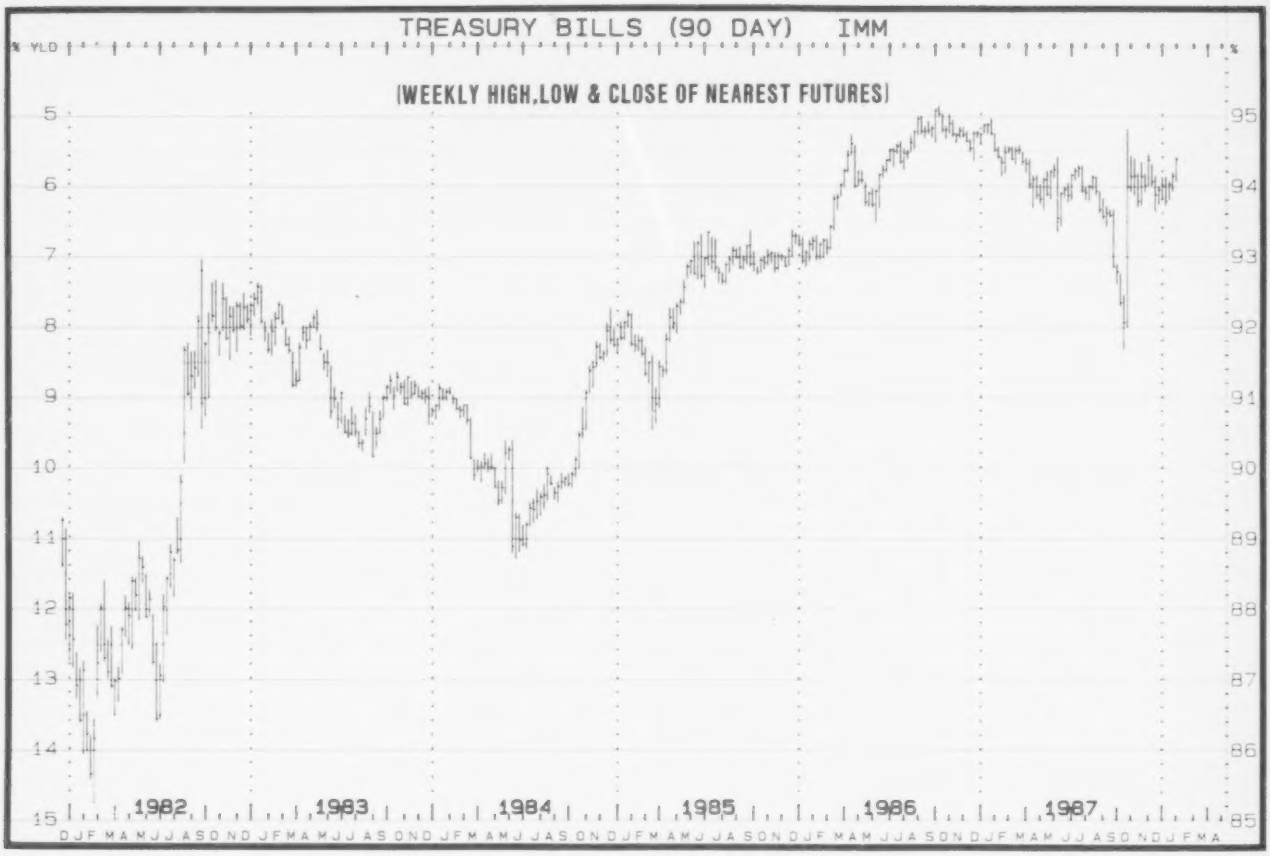
T.315

U.S. Consumer Price Index (Retail Price Index for All Items: Urban Consumers) 1967 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	282.5	283.4	283.1	284.3	287.1	290.6	292.2	292.8	293.3	294.1	293.6	292.4	289.1
1983	293.1	293.2	293.4	295.5	297.1	298.1	299.3	300.3	301.8	302.6	303.1	303.5	298.4
1984	305.2	306.6	307.3	308.8	309.7	310.7	311.7	313.0	314.5	315.3	315.3	315.5	311.1
1985	316.1	317.4	318.8	320.1	321.3	322.3	322.8	323.5	324.5	325.5	326.6	327.4	322.2
1986	328.4	327.5	326.0	325.3	326.3	327.9	328.0	328.6	330.2	330.5	330.8	331.1	328.4
1987[1]	333.1	334.4	335.9	337.7	338.7	340.1	340.8	342.7	344.4	345.3			

[1] Preliminary. *Source: Bureau of Labor Statistics*

T.316



Month–End Open Interest of 13 Wk.[1] Treasury Bill Futures in Chicago In Thousands of Contracts

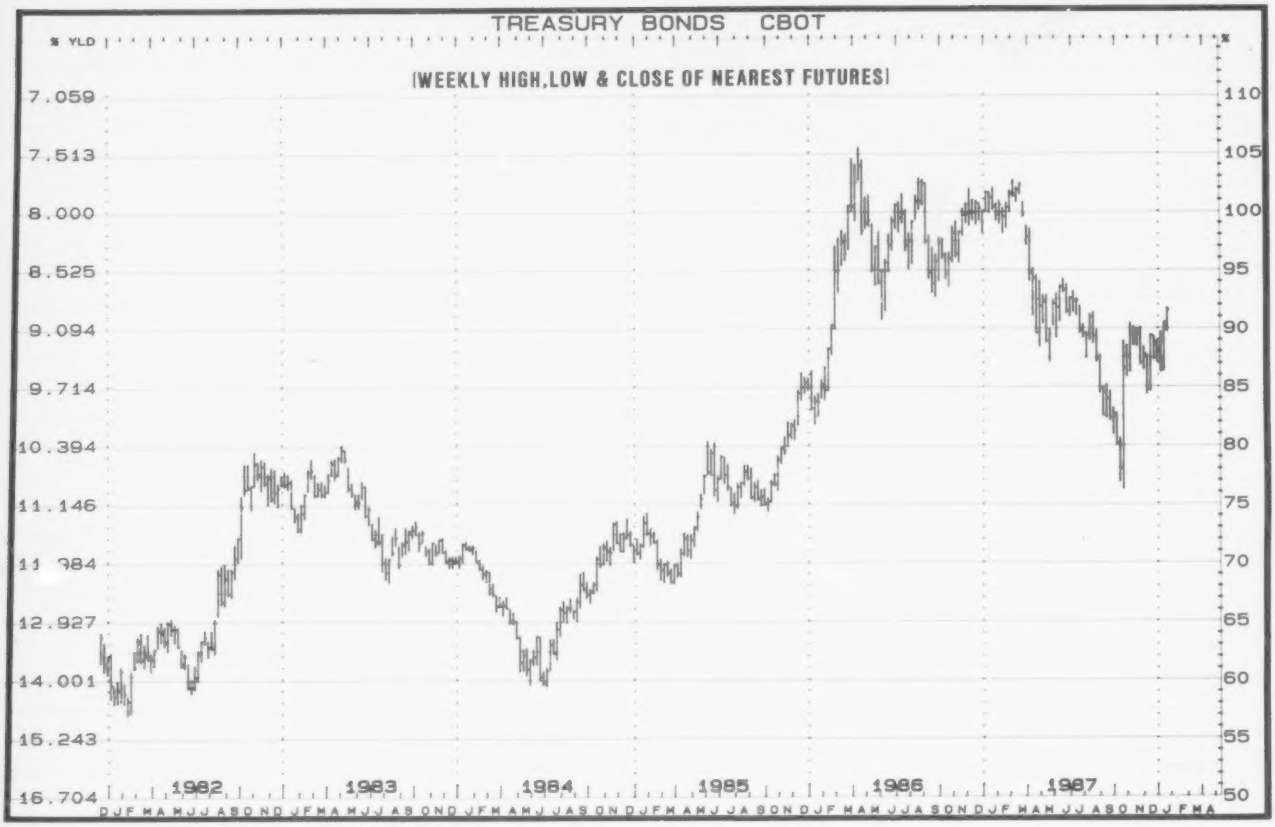
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	30.2	25.0	28.5	28.2	24.7	25.2	22.9	23.1	21.4	24.2	39.2	42.9
1981	45.7	38.0	32.8	28.9	35.6	38.9	45.7	43.6	32.3	38.7	36.2	30.1
1982	33.9	33.0	36.5	43.9	52.5	41.4	52.2	59.6	51.1	45.8	50.1	49.0
1983	47.7	46.8	38.6	44.6	43.8	40.4	45.1	39.9	47.8	51.2	52.4	40.8
1984	48.7	50.8	48.8	55.8	52.4	47.5	43.4	44.9	36.8	47.8	45.7	40.7
1985	48.3	46.3	39.4	40.9	36.4	33.7	38.0	36.8	32.9	40.0	39.8	33.3
1986	37.9	47.6	49.2	47.6	39.9	39.0	40.7	39.6	35.0	37.0	37.6	37.6
1987	46.1	48.5	38.6	33.0	27.1	24.2	25.0	24.6	21.1	27.2	23.4	18.8

[1] 90-day U.S. Treas. Bill. *Source: International Monetary Market (Chicago)* T.322

Volume of Trading of 13 Wk.[1] Treasury Bill Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	237.5	245.4	290.3	350.1	321.2	250.7	224.4	204.9	231.1	274.3	287.7	401.1	3,338.8
1981	446.6	414.4	408.5	407.6	426.1	511.0	487.8	482.0	525.8	516.0	509.5	496.5	5,631.3
1982	503.5	465.5	638.7	529.1	595.4	546.0	615.2	738.4	628.6	521.4	442.4	374.7	6,598.8
1983	302.2	337.9	361.4	308.5	331.4	366.2	283.9	371.1	273.5	309.8	275.7	268.5	3,790.0
1984	200.0	213.4	304.9	300.2	489.1	342.8	315.1	242.5	201.6	203.6	264.0	215.5	3,293.0
1985	231.3	245.4	314.5	217.9	206.2	205.6	180.6	165.8	206.8	159.9	142.1	138.1	2,413.0
1986	175.0	215.4	149.5	212.8	169.7	152.9	117.8	135.7	160.8	114.2	106.3	105.1	1,815.2
1987	137.9	218.8	151.8	197.6	207.8	125.5	97.5	125.4	110.1	262.2	161.0	131.6	1,927.0

[1] 90-day U.S. Treas. Bill. *Source: International Monetary Market (Chicago)* T.323



Month–End Open Interest of Treasury Bond Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	71.3	66.4	57.1	70.2	84.8	111.1	110.0	117.2	123.2	153.1	204.8	243.6
1981	240.7	223.6	226.1	230.4	241.3	290.9	315.1	295.4	240.5	257.7	248.7	221.7
1982	216.2	192.9	184.4	193.0	181.8	160.6	158.1	162.7	159.0	160.4	175.7	182.9
1983	177.6	142.9	147.5	142.1	130.3	144.5	165.1	142.5	150.0	172.9	193.4	183.7
1984	170.7	163.0	158.4	173.8	192.3	191.5	192.3	193.0	188.8	244.6	230.5	202.5
1985	208.3	224.2	214.1	220.2	210.8	197.6	223.1	215.8	234.5	309.1	306.3	300.6
1986	321.8	301.9	244.7	240.1	209.7	195.4	214.1	181.2	207.4	232.4	229.2	229.3
1987	283.7	253.3	235.1	327.2	238.3	255.1	290.8	320.2	352.3	366.5	296.4	262.3

Source: Chicago Board of Trade T.317

Volume of Trading of Treasury Bond Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	311.1	332.4	349.3	423.4	520.5	608.6	502.7	516.4	501.2	691.6	722.5	1,009.8	6,489.6
1981	846.7	868.6	975.9	998.9	1,178.1	1,094.4	1,081.8	1,191.5	1,313.7	1,289.1	1,691.5	1,377.9	13,908.0
1982	1,266.4	1,306.1	1,413.9	1,259.4	1,408.2	1,254.8	1,145.5	1,669.5	1,474.4	1,644.0	1,545.2	1,352.3	16,739.7
1983	1,333.9	1,447.8	1,600.4	1,262.9	1,679.2	1,704.8	1,579.0	2,312.7	1,605.7	1,839.4	1,687.0	1,497.8	19,551
1984	1,475.7	1,891.3	2,629.4	2,068.7	3,373.8	2,593.9	2,691.7	2,792.2	2,556.6	2,924.2	2,781.2	2,184.9	29,963
1985	2,974	3,250	2,906	2,272	3,339	3,755	3,308	3,409	3,149	3,558	4,118	3,965	40,448
1986	4,640	5,220	4,445	5,115	4.783	4,486	4,114	4,175	4,638	3,853	3,595	3,534	52,599
1987	4,188	4,308	4,128	7,110	6,120	5,518	4,839	6,185	7,769	7,388	4,861	4,428	66,841

Source: Chicago Board of Trade T.319

High, Low & Closing Prices of June Treasury Bond Futures in Chicago In 32nds of 100%

Year of Delivery		Year Prior to Delivery							Delivery Year						Life of Delivery Range
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1980	High	92–13	92–12	91–18	89–18	87–13	84–14	85–00	82–24	75–07	71–24	77–27	83–20	87–07	95–31
	Low	89–24	89–27	89–09	87–05	78–11	78–15	80–20	74–07	63–15	64–30	67–12	77–00	78–09	63–15
	Close	91–27	90–20	89–11	87–21	80–12	83–01	82–29	75–04	69–00	67–27	77–02	79–14	85–25	—
1981	High	85–15	81–08	77–00	75–23	75–04	71–20	73–18	74–22	70–15	70–15	67–17	64–30	67–16	88–08
	Low	77–31	74–26	71–27	69–11	67–22	66–05	65–28	69–04	64–05	64–20	61–25	59–11	64–04	59–11
	Close	80–23	75–04	73–26	71–10	68–17	70–02	72–06	70–09	65–31	67–02	61–28	64–24	65–13	—
1982	High	69–29	66–23	64–30	62–04	61–09	66–24	66–14	62–16	62–26	64–08	64–27	65–05	62–18	74–20
	Low	65–28	62–28	59–04	56–08	56–12	58–30	60–20	58–05	57–10	60–22	61–05	62–15	59–01	56–08
	Close	65–30	63–01	59–17	57–03	59–05	65–21	62–04	61–01	61–14	61–30	63–06	62–27	59–24	—
1983	High	63–30	65–06	69–29	71–05	77–04	77–20	76–24	77–04	77–13	78–08	79–02	80–00	76–29	80–00
	Low	60–29	61–27	63–18	67–17	70–09	73–18	73–21	72–14	71–27	74–28	75–31	74–20	73–24	57–28
	Close	62–19	64–01	67–20	70–27	75–11	73–28	76–00	72–21	76–22	75–31	78–30	74–21	73–27	—
1984	High	74–29	73–05	71–12	72–02	75–15	70–31	70–20	71–06	70–26	68–22	67–00	64–31	63–21	77–28
	Low	72–00	67–26	66–28	68–09	69–18	68–23	68–05	68–30	67–22	65–22	64–17	59–16	60–11	58–28
	Close	73–03	68–16	68–12	71–23	69–19	70–17	69–15	70–07	68–07	66–07	64–22	60–05	61–19	—
1985	High	61–16	63–10	65–04	67–20	70–03	72–05	72–00	73–07	70–14	69–24	72–17	77–14	80–11	80–11
	Low	58–05	58–00	62–29	63–12	65–19	68–10	69–15	69–09	66–10	67–08	68–23	70–21	77–13	56–25
	Close	58–07	63–01	64–06	66–05	69–14	70–10	70–11	72–03	66–15	69–23	70–24	77–11	79–18	—
1986	High	76–07	76–00	75–05	74–29	76–17	79–25	84–25	85–10	96–01	102–12	105–15	101–11	98–01	105–15
	Low	72–10	71–09	71–19	71–26	72–04	75–15	78–04	80–20	82–26	92–06	97–29	93–19	90–22	56–29
	Close	74–05	72–09	74–02	73–14	76–01	79–15	84–08	84–03	94–00	102–10	100–24	93–28	96–13	—
1987	High	97–10	99–07	100–03	102–10	96–24	98–24	99–30							
	Low	88–12	92–16	93–01	89–17	91–21	93–24	96–24							
	Close	97–06	95–10	99–29	94–21	96–06	97–25	97–06							
1988	High														
	Low														
	Close														

Source: Chicago Board of Trade T.320

High, Low & Closing Prices of June 5-Yr. T-Notes Futures in New York In 32nds of 100%

Year of Delivery		Year Prior to Delivery									Delivery Year						Life of Delivery Range
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1987	High														99–42	100–42	100–42
	Low					Futures trading began May 7, 1987.									97–16	98–35	97–16
	Close														99–03	100–22	—
1988	High	—	—	—	—	97–25	95–35	96–44	97–24	97–28							
	Low	—	—	—	—	95–37	93–17	91–02	96–04	95–42							
	Close	—	—	—	—	95–38	93–17	96–22	96–41	97–15							

Source: N.Y. Cotton Exchange T.326

Month–End Open Interest of 5-Yr. T-Notes Futures in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1987					2,559	5,508	4,883	3,903	5,312	2,250	6,618	2,590
1988												

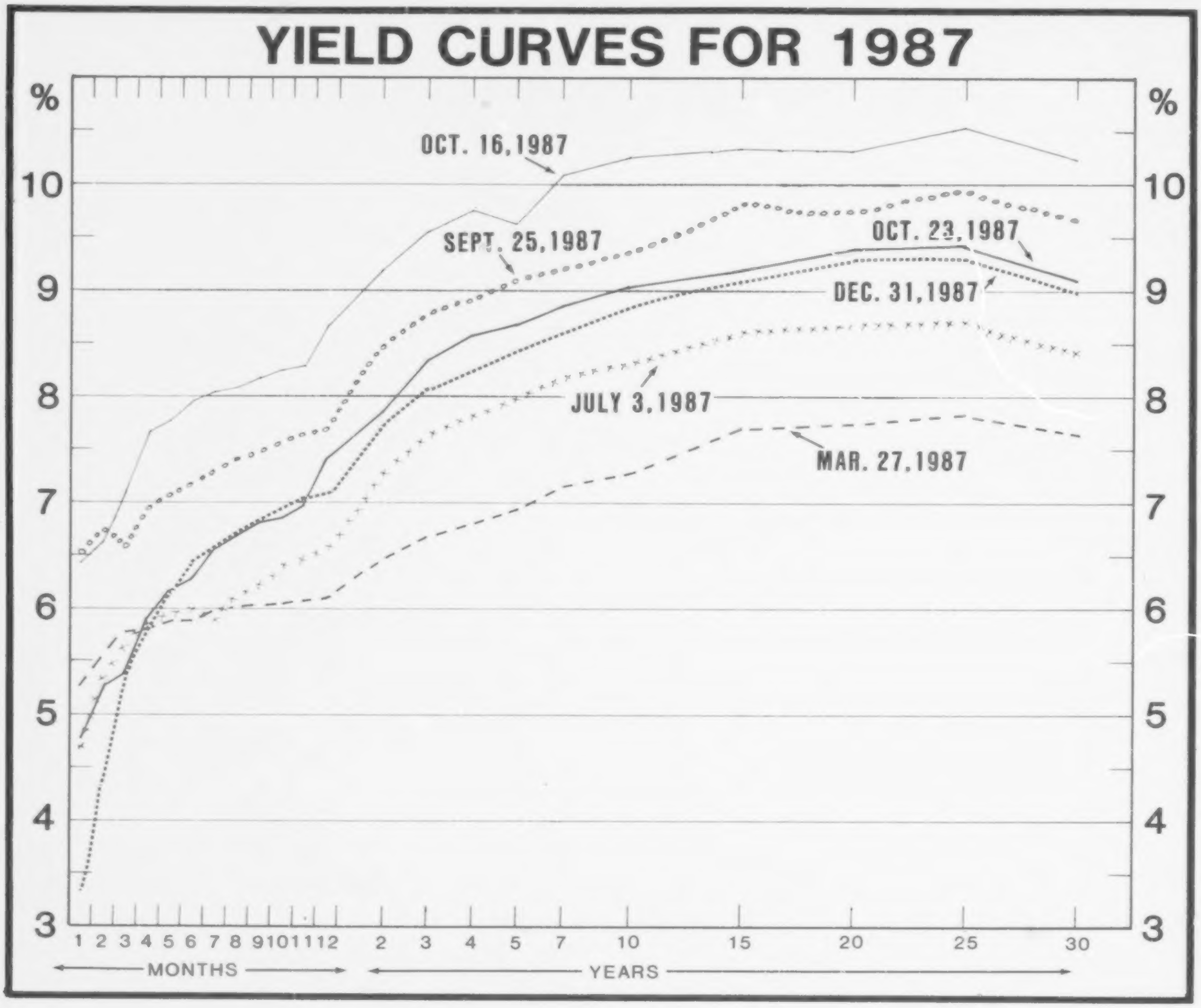
Source: N.Y. Cotton Exchange T.325

Volume of Trading of 5-Yr. T-Notes Futures in New York In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1987					30.9	43.9	38.5	52.3	73.4	59.8	45.9	37.8	383.6
1988													

Source: N.Y. Cotton Exchange T.324

YIELD CURVES FOR 1987



Volume of Trading of T-Note (10-Yr.) Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	59.7	110.5	126.8	105.3	199.1	145.1	147.2	162.8	139.5	149.2	166.0	150.7	1,662
1985	171.8	216.0	215.9	175.8	274.9	266.9	219.4	282.9	212.7	234.3	297.5	292.5	2,860
1986	269.7	401.4	383.1	381.7	434.8	470.3	309.7	363.1	459.5	319.9	328.1	305.2	4,426
1987	304.9	358.3	347.6	643.8	541.3	405.1	269.6	446.0	512.9	662.0	369.4	392.8	5,254

Source: Chicago Board of Trade T.0565B

Volume of Trading of Eurodollar Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	104.8	127.4	235.4	202.2	434.7	448.1	438.6	354.5	435.3	491.1	532.4	388.4	4,193
1985	524.7	723.6	877.2	764.7	753.7	891.5	798.0	697.5	769.1	694.3	695.4	710.7	8,901
1986	888.5	825.1	627.9	933.7	982.6	1,018.1	755.3	847.2	1,288.7	1,046.7	836.3	774.8	10,825
1987	1,072	1,472	1,197	2,562	1,825	1,760	1,292	1,514	2,495	2,849	1,202	1,177	20,416

Source: International Monetary Market (IMM)—Chicago Mercantile Exchange T.0564B

High, Low & Closing Prices of June 13 Wk. Treasury Bill Futures in Chicago In Points of 100%

Year of Delivery	Year Prior to Delivery									Delivery Year						Life of Delivery Range
	Apr.	May	June	July	Aug.	Sept.	Oct	Nov.	Dec.	Jan	Feb.	Mar.	Apr.	May	June	
1978 High	93.59	93.31	93.69	93.57	93.50	93.51	93.28	93.28	93.29	93.17	93.15	93.33	93.49	93.48	93.41	93.80
Low	92.52	92.53	93.19	93.01	92.95	93.10	92.80	92.92	92.95	92.63	92.78	93.00	93.03	93.09	93.20	92.26
Close	92.60	93.22	93.61	93.15	93.38	93.29	92.97	93.25	93.13	92.99	93.13	93.02	93.13	93.21	93.23	—
1979 High	92.12	91.87	91.90	91.81	92.11	92.12	91.55	91.08	90.83	90.74	90.88	90.72	90.87	90.84	91.45	92.83
Low	91.76	91.62	91.49	91.51	91.62	91.40	90.50	90.39	90.14	90.16	90.35	90.43	90.31	90.30	90.50	90.14
Close	91.76	91.68	91.55	91.75	91.93	91.51	90.58	90.62	90.22	90.65	90.47	90.51	90.50	90.60	91.06	—
1980 High	90.91	91.55	92.59	92.50	92.30	91.65	91.41	91.22	91.01	90.50	89.05	86.40	89.94	92.73	93.97	93.97
Low	90.51	90.48	91.34	91.54	90.93	90.36	88.10	88.85	89.21	88.37	86.06	84.20	85.40	89.75	92.00	84.20
Close	90.62	91.46	92.32	91.89	91.11	91.03	89.29	90.55	90.17	88.84	86.49	85.82	89.90	92.30	92.12	—
1981 High	90.90	92.00	92.64	92.04	91.10	89.61	89.77	88.47	88.89	89.43	89.00	89.38	88.95	85.90	86.48	92.64
Low	87.51	90.60	91.15	90.65	88.45	87.66	87.47	87.08	85.40	87.31	86.36	86.64	85.52	83.35	84.34	83.35
Close	90.79	91.60	91.50	90.72	89.13	88.31	87.51	87.25	88.18	88.89	87.19	88.77	85.55	85.39	85.79	—
1982 High	89.20	87.81	88.47	87.86	87.52	87.00	87.61	89.54	89.42	87.85	87.48	88.32	88.16	88.94	88.46	91.26
Low	87.09	86.03	87.40	86.91	85.95	85.48	85.53	87.42	86.93	85.85	85.45	86.46	86.67	87.41	87.16	85.45
Close	87.10	87.73	87.92	87.21	86.08	85.60	87.55	89.19	87.76	86.90	86.92	86.83	87.88	88.57	87.18	—
1983 High	87.37	87.82	87.56	87.93	89.12	89.66	91.19	91.43	91.94	92.26	92.40	92.28	92.04	92.22	91.65	92.40
Low	86.45	87.00	86.32	86.75	87.63	87.95	89.29	90.57	90.67	91.41	91.26	91.12	91.20	91.28	91.12	85.83
Close	87.29	87.64	86.77	87.72	88.11	89.63	90.70	90.61	91.92	91.45	92.19	91.20	91.98	91.30	91.15	—
1984 High	91.23	91.47	90.60	90.44	90.06	90.51	90.66	90.57	90.47	90.82	90.78	90.48	90.18	90.36	90.37	91.47
Low	90.63	90.33	90.11	89.55	89.30	89.57	90.32	90.13	90.00	90.32	90.28	89.79	89.77	89.44	90.12	86.50
Close	91.23	90.34	90.39	89.60	89.59	90.46	90.39	90.39	90.44	90.72	90.38	89.97	89.94	90.18	90.28	—
1985 High	88.92	88.60	87.95	88.47	88.90	89.51	90.12	91.13	91.46	91.81	91.47	91.49	92.25	92.93	93.19	93.19
Low	88.46	87.16	87.14	87.17	88.28	88.53	89.09	89.45	90.69	91.14	90.78	90.39	91.26	91.98	92.95	87.14
Close	88.52	87.25	87.20	88.28	88.69	89.15	90.10	90.70	91.16	91.54	90.80	91.41	92.01	92.91	93.09	—
1986 High	90.64	91.68	92.24	92.41	92.17	92.32	92.59	92.91	93.30	93.18	93.53	94.07	94.71	94.20	93.74	94.71
Low	89.86	90.36	91.58	91.50	91.51	91.74	92.03	92.41	92.72	92.63	92.93	93.38	93.96	93.68	93.48	86.43
Close	90.37	91.66	91.89	91.62	91.93	92.19	92.51	92.91	93.14	93.13	93.39	94.07	94.11	93.71	93.49	—
1987 High	94.38	93.89	94.06	94.37	94.89	95.08	94.90	94.91	94.95	94.97	94.69	94.67	94.38	94.29	94.40	95.08
Low	93.55	93.17	92.94	93.91	94.22	93.46	94.50	94.55	94.62	94.58	94.18	94.20	93.68	93.66	94.13	90.41
Close	93.78	93.22	94.03	94.31	94.89	94.57	94.75	94.83	94.66	94.60	94.62	94.31	93.88	94.22	94.35	—
1988 High	94.06	93.05	93.40	93.58	93.38	92.84	94.10	93.59	93.79							
Low	92.77	91.95	92.39	93.05	92.71	92.02	91.28	92.91	93.06							
Close	92.98	92.70	93.29	93.11	92.82	92.07	93.04	93.58	93.70							

Source: International Monetary Market (Chicago)

T.321

U.S. Industrial Production Index[1] (Seasonally Adjusted) 1977 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	110.3	110.9	111.2	109.9	110.9	110.9	110.5	110.2	110.4	111.0	111.0	111.0	110.7
1980	111.3	111.4	111.4	109.1	106.2	105.0	104.8	106.3	107.7	108.5	110.7	111.0	108.6
1981	111.0	111.2	111.6	110.6	111.2	112.0	113.4	112.8	111.5	110.4	109.0	107.4	111.0
1982	105.4	107.0	105.8	104.5	103.6	103.0	102.5	102.0	101.3	100.5	100.6	100.5	103.1
1983	102.5	103.3	104.2	105.6	106.9	107.8	109.8	111.6	113.7	114.4	114.8	115.5	109.2
1984	118.5	119.3	119.9	120.5	121.0	121.9	122.8	123.0	122.4	122.1	122.7	122.7	121.8
1985	122.4	122.9	123.3	123.1	123.7	123.5	123.4	124.1	124.4	123.7	124.8	125.4	123.7
1986	126.4	125.5	123.9	124.7	124.3	124.1	124.8	124.9	124.5	125.3	125.7	126.8	125.1
1987[2]	126.2	127.1	127.4	127.4	128.2	129.1	130.6	131.0	130.9	131.7			

[1] Total Index of the Federal Reserve Index of Quantity Output [2] Preliminary

Source: Federal Reserve System

T.318

High, Low & Closing Prices of June Eurodollar Futures in Chicago In Points of 100%

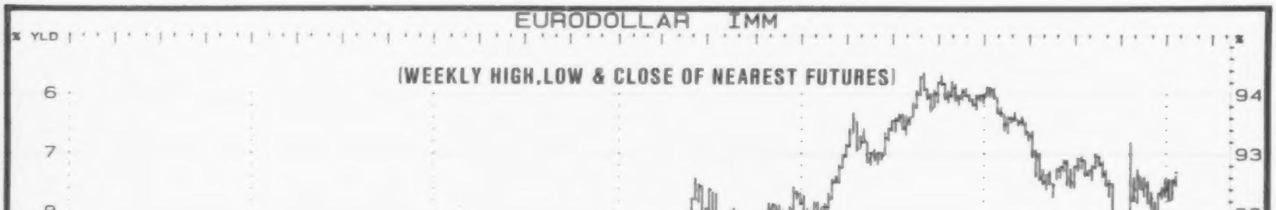
Year of Delivery		Year Prior to Delivery									Delivery Year					Life of Delivery Range
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1985	High	87.35	86.89	86.18	87.03	87.47	88.30	88.94	89.92	90.23	90.88	90.50	90.25	91.31	92.25	92.59	92.59
	Low	86.74	84.83	85.17	85.27	86.78	86.69	87.66	88.85	89.39	89.83	89.42	88.97	90.03	91.00	92.18	84.83
	Close	86.80	84.99	85.30	86.82	86.99	87.82	88.87	89.47	89.88	90.57	89.45	90.23	91.05	92.24	92.44	—
1986	High	89.44	90.47	91.15	91.16	90.98	91.14	91.55	91.93	92.34	92.19	92.55	93.04	93.69	93.42	93.02	93.69
	Low	88.34	88.93	90.38	90.17	90.25	90.40	90.83	91.40	91.59	91.53	91.76	92.39	92.95	92.81	92.82	86.73
	Close	88.94	90.46	90.79	90.31	90.72	90.97	91.46	91.82	92.14	92.02	92.39	93.03	93.25	92.93	93.00	—
1987	High	93.20	92.81	92.90	93.28	94.02	94.13	94.02	94.08	94.15	94.14	93.84	93.78	93.38	92.76	92.90	94.15
	Low	92.44	92.00	91.82	92.80	93.13	93.35	93.58	93.71	93.84	93.74	93.37	93.24	92.49	92.27	92.60	88.84
	Close	92.65	92.10	92.84	93.28	94.08	93.66	93.91	94.01	93.86	93.77	93.67	93.35	92.61	92.74	92.87	—
1988	High	92.93	91.78	92.10	92.21	92.01	91.48	93.80	92.16	92.32							
	Low	91.44	90.60	91.13	90.95	91.36	90.65	89.79	91.54	91.60							
	Close	91.78	91.47	91.89	91.76	91.46	90.74	91.74	92.03	92.20							

Source: International Monetary Market (IMM)—Chicago Mercantile Exchange T.0564

Month-End Open Interest of Eurodollar Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	50.3	60.6	62.0	74.2	90.3	89.3	95.1	94.6	78.1	89.9	96.2	85.1
1985	105.5	105.5	98.4	110.0	130.7	116.3	128.9	131.4	122.0	144.2	165.3	121.5
1986	145.3	155.3	142.7	164.0	173.9	155.9	171.5	203.5	216.6	227.4	234.3	214.4
1987	256.6	255.6	236.0	281.5	294.7	253.0	301.9	344.2	361.0	369.7	354.3	292.3

Source: International Monetary Market (IMM)—Chicago Mercantile Exchange T.0564A



High, Low & Closing Prices of June T-Note Futures in Chicago In 32nds of 100%

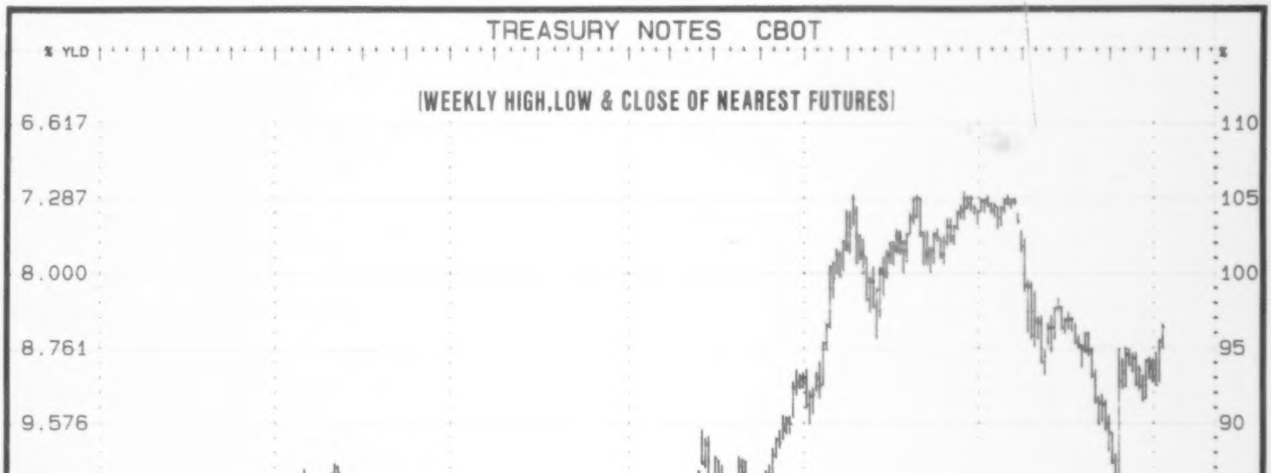
Year of Delivery		Year Prior to Delivery							Delivery Year						Life of Delivery Range
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1985	High	70–15	73–23	75–03	77–07	79–03	81–07	80–22	82–03	80–28	79–18	82–08	86–27	89–18	89–18
	Low	69–23	71–16	73–30	74–15	75–24	78–05	78–16	78–19	77–19	77–11	78–23	80–27	87–00	69–23
	Close	69–17	73–23	74–10	76–02	78–25	79–09	79–07	81–07	77–28	79–14	81–02	86–24	88–20	—
1986	High	85–17	84–29	84–24	84–15	86–10	88–19	92–17	92–21	100–03	102–26	105–08	102–13	101–02	105–08
	Low	81–15	81–00	81–14	82–18	82–31	85–23	87–22	89–05	91–00	97–05	100–18	97–12	95–19	74–30
	Close	82–30	81–27	83–27	83–26	85–28	88–13	92–02	92–07	98–15	102–24	102–08	97–23	100–06	—
1987	High	—	101–14	102–21	105–00	101–18	102–20	103–21	104–11	104–05	104–15	102–09	98–01	98–10	105–00
	Low	—	98–00	98–29	97–31	99–00	100–12	102–00	102–19	102–05	101–18	95–02	93–06	94–22	93–06
	Close	—	99–21	102–21	99–24	101–15	102–08	102–14	103–13	103–31	102–10	97–24	96–09	97–22	—
1988	High	—	—	92–25	90–23	92–17	93–14	93–10							
	Low	—	—	90–29	87–19	83–30	91–04	89–25							
	Close	—	—	91–00	87–19	91–24	91–23	92–26							

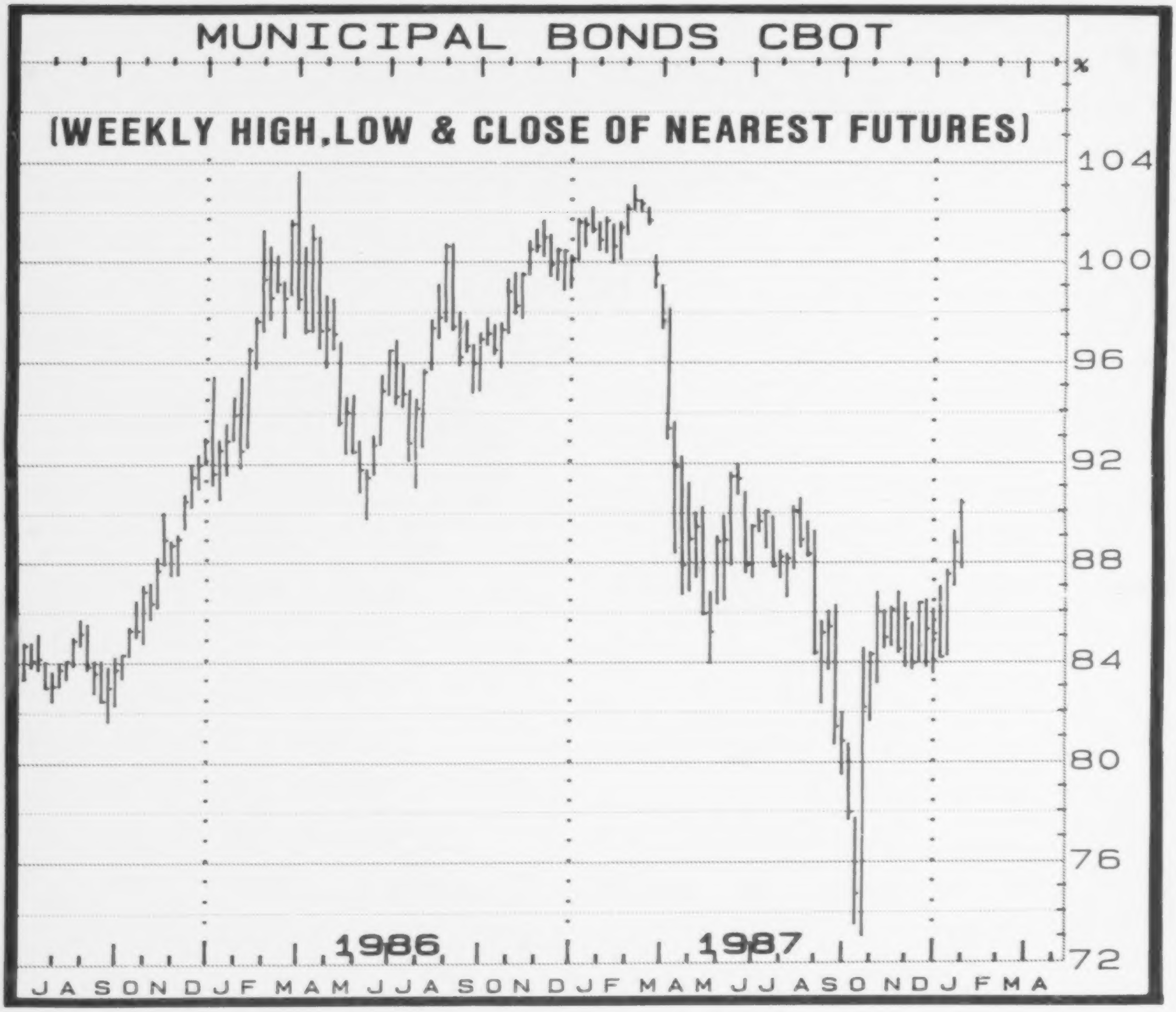
Source: Chicago Board of Trade T.0565

Month-End Open Interest of T-Note (10-Yr.) Futures in Chicago In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	19.6	23.3	21.8	28.1	32.5	32.3	36.5	32.8	30.3	34.7	33.7	36.0
1985	41.4	48.7	43.9	45.1	50.7	49.4	62.1	57.7	57.2	70.5	64.5	70.5
1986	79.1	76.5	66.3	63.8	74.5	66.7	67.7	54.8	55.1	61.6	61.6	53.7
1987	57.6	50.8	56.0	66.9	64.0	65.6	72.3	78.0	79.0	82.6	73.7	76.2

Source: Chicago Board of Trade T.0565A





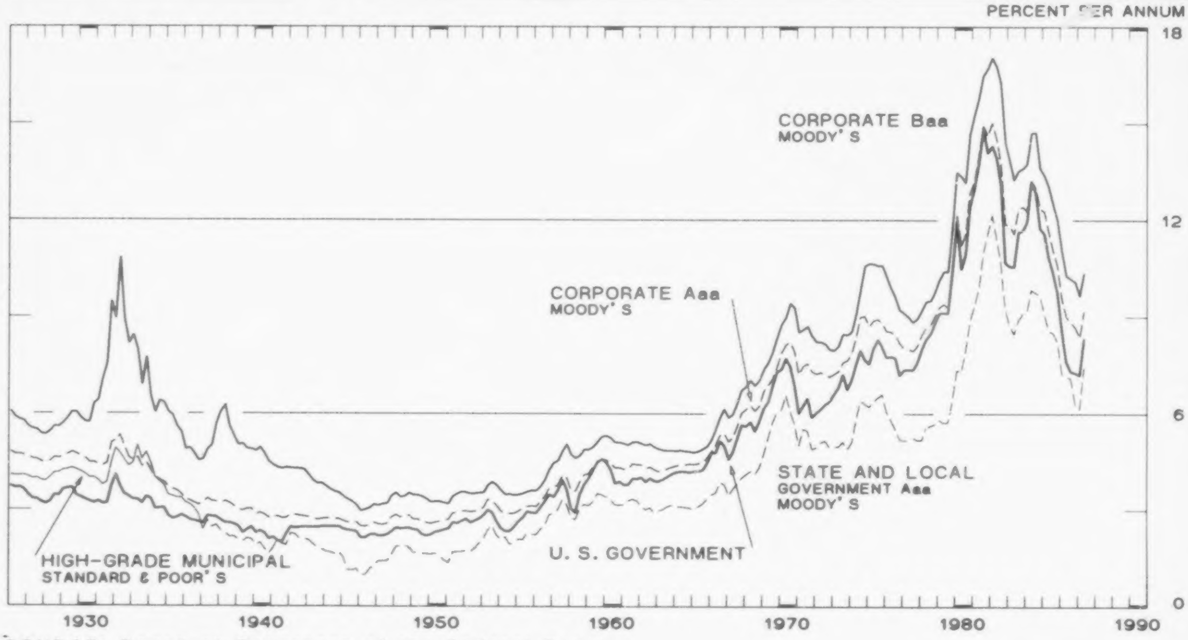
U.S. Federal Funds Rate In Percent

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1976	4.87	4.77	4.84	4.82	5.29	5.48	5.31	5.29	5.25	5.03	4.95	4.65	5.05
1977	4.61	4.68	4.69	4.73	5.35	5.39	5.42	5.90	6.14	6.47	6.51	6.56	5.54
1978	6.70	6.78	6.79	6.89	7.36	7.60	7.81	8.04	8.45	8.96	9.76	10.03	7.93
1979	10.07	10.06	10.09	10.01	10.24	10.29	10.47	10.94	11.43	13.77	13.18	13.78	11.19
1980	13.82	14.13	17.19	17.61	10.98	9.47	9.03	9.61	10.87	12.81	15.85	18.90	13.36
1981	19.08	15.93	14.70	15.72	18.52	19.10	19.04	17.82	15.87	15.08	13.31	12.37	16.38
1982	13.22	14.78	14.68	14.94	14.45	14.15	12.59	10.12	10.31	9.71	9.20	8.95	12.26
1983	8.68	8.51	8.77	8.80	8.63	8.98	9.37	9.56	9.45	9.48	9.34	9.47	9.09
1984	9.56	9.59	9.91	10.29	10.32	11.06	11.23	11.64	11.30	9.99	9.43	8.38	10.23
1985	8.35	8.50	8.58	8.27	7.97	7.53	7.88	7.90	7.92	7.99	8.05	8.27	7.41
1986	8.14	7.86	7.48	6.99	6.85	6.92	6.56	6.17	5.89	5.85	6.04	6.91	6.81
1987	6.43	6.10	6.13	6.37	6.85	6.73	6.58	6.73	7.22	7.29	6.69	6.76	6.66

Source: U.S. Dept. of Commerce. T.318a

LONG-TERM BOND YIELDS

QUARTERLY AVERAGES

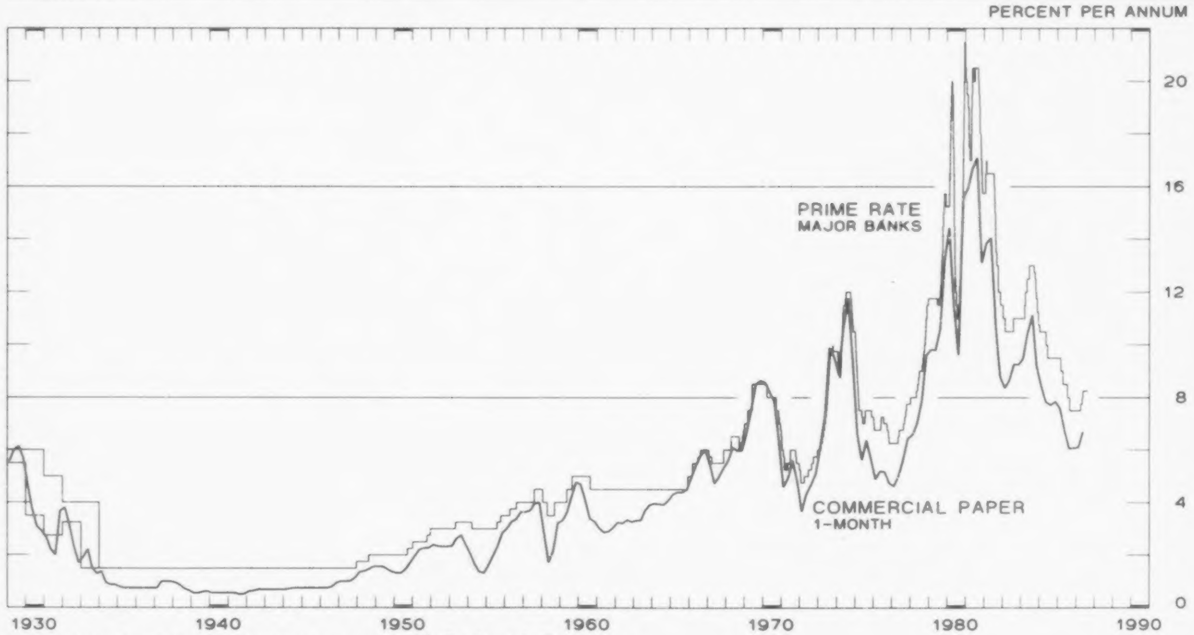


SOURCE: Board of Governors of the Federal Reserve

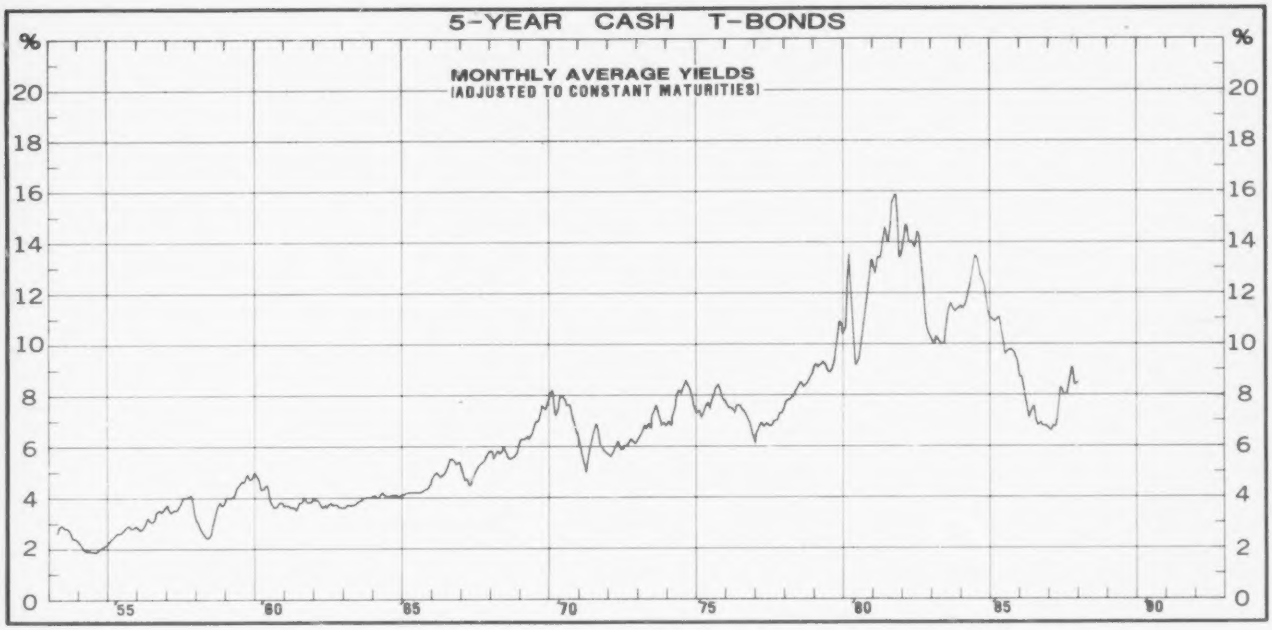
SHORT-TERM INTERST RATES

BUSINESS BORROWING

PRIME RATE, EFFECTIVE DATE OF CHANGE; COMMERCIAL PAPER, QUARTERLY AVERAGES



SOURCE: Board of Governors of the Federal Reserve



U.S. Money Supply M1 in 1982[2] Dollars In Billions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1977	221.2	220.9	221.0	221.5	221.2	220.9	221.2	221.2	221.8	222.6	222.8	223.1	221.6
1978	224.3	223.1	222.7	223.6	223.7	223.3	222.6	222.1	222.6	221.0	221.2	221.4	222.6
1979	222.4	220.8	220.6	221.9	219.6	219.7	219.3	218.3	216.8	215.0	213.4	211.9	218.3
1980	209.9	209.0	206.2	201.6	199.3	199.7	201.7	203.9	204.7	204.9	203.6	200.2	204.2
1981	200.5	200.0	200.3	202.0	199.9	198.2	197.1	196.5	194.9	194.3	194.8	196.4	197.8
1982	199.2	197.9	198.0	198.2	197.1	195.3	194.5	196.1	198.5	200.6	203.2	205.6	198.7
1983[2]	475.7	481.9	486.2	485.4	489.9	492.4	496.3	498.1	498.9	500.8	500.8	501.7	492.3
1984	501.4	502.2	503.5	503.4	504.9	507.6	506.7	505.0	507.1	504.7	507.2	510.5	505.4
1985	513.6	518.4	518.6	520.1	523.5	529.7	533.9	540.1	545.9	546.4	548.3	553.3	532.6
1986[1]	553.1	557.5	567.1	575.5	584.2	588.7	596.5	604.8	608.3	614.5	622.6	637.3	592.3
1987[1]	639.3	636.3	635.5	641.9	642.2	634.4	633.8	633.8	632.9	638.4	633.1		

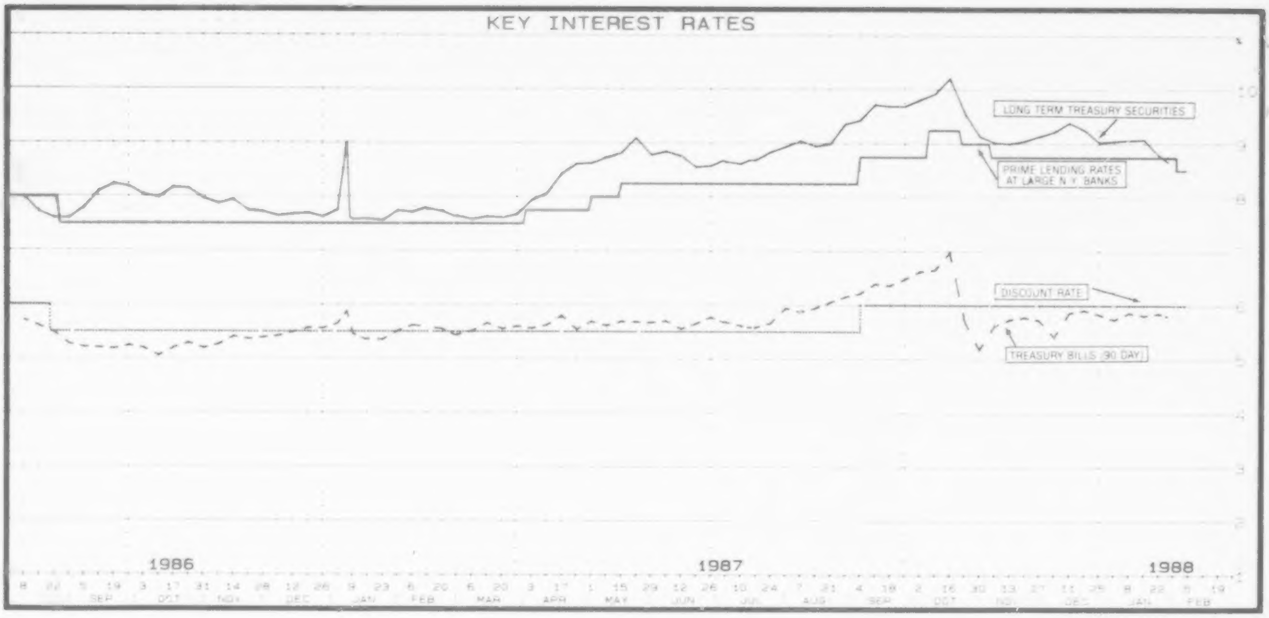
[1] Preliminary. [2] Data prior to 1984 are in 1972 dollars. *M1*—This measure is currency, travelers checks, plus demand deposits at commercial banks and interest-earning checkable deposits at all depository institutions. *Source: Federal Reserve System* T.327

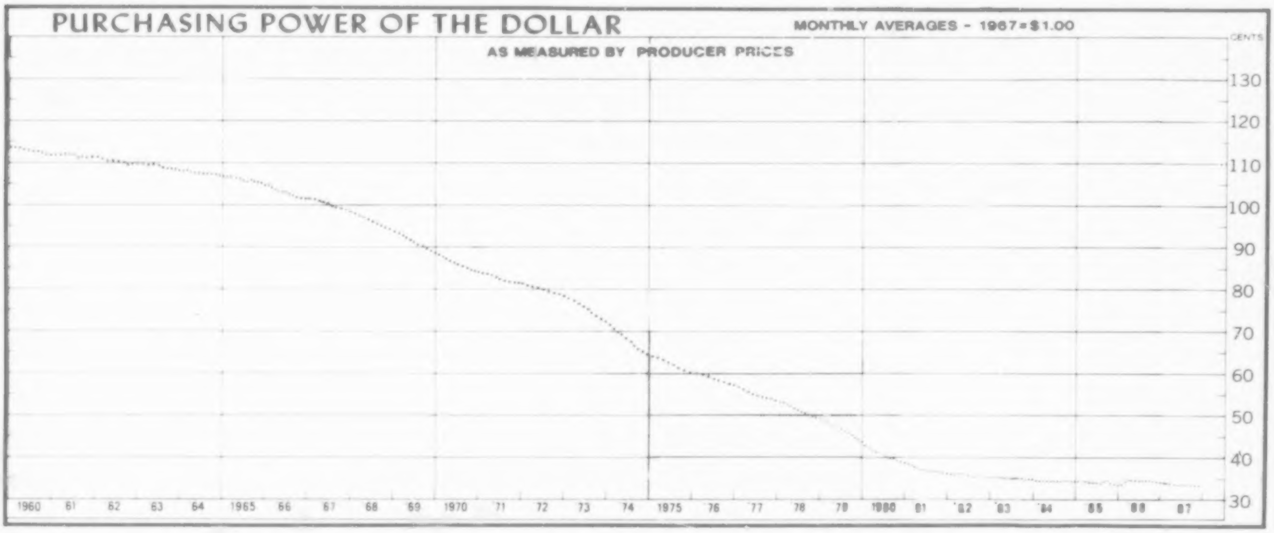
U.S. Money Supply M2 in 1982[2] Dollars In Billions of Dollars

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1977	840.1	841.9	845.1	848.3	852.7	853.7	856.1	859.2	861.7	865.3	866.5	868.1	854.9
1978	686.6	867.6	867.2	867.0	865.4	863.2	862.1	863.0	863.1	862.0	862.4	861.7	864.4
1979	860.7	857.4	856.8	857.0	853.9	853.2	850.7	848.9	845.5	838.7	833.0	827.7	848.6
1980	818.6	815.6	808.9	799.3	798.2	800.1	810.1	814.6	812.0	808.8	807.7	800.0	812.3
1981	787.2	786.3	788.3	793.8	790.9	788.5	784.9	786.4	784.2	787.9	792.0	798.6	789.1
1982	802.7	803.0	807.5	810.4	809.2	805.4	806.3	812.8	819.3	822.9	830.1	841.1	814.2
1983[2]	1,976	2,013	2,027	2,027	2,034	2,042	2,048	2,054	2,058	2,069	2,075	2,080	2,042
1984	2,079	2,087	2,091	2,095	2,101	2,108	2,111	2,113	2,122	2,132	2,150	2,170	2,113
1985	2,189	2,203	2,200	2,194	2,201	2,221	2,231	2,246	2,256	2,256	2,257	2,268	2,227
1986[1]	2,265	2,277	2,301	2,330	2,345	2,353	2,375	2,393	2,402	2,419	2,426	2,444	2,361
1987[1]	2,447	2,436	2,429	2,430	2,422	2,415	2,414	2,416	2,423	2,428	2,420		

[1] Preliminary. [2] Data prior to 1983 are in 1972 dollars. *M2*—This measure adds to M1 overnight repurchase agreements (RP's) issued by commercial banks and certain overnight Eurodollars (those issued by Caribbean branches of member banks) held by U.S. nonbank residents, general purpose and broker/dealer money market mutual fund shares (MMMF), and savings and small-denomination time deposits.
Source: Federal Reserve System T.328

INTEREST RATES





U.S. Gross National Product, National Income, and Personal Income In Billions of Current Dollars[1]

	Gross National Product					National Income					Personal Income				
Year	I	II	III	IV	Annual Avg.	I	II	III	IV	Annual Avg.	I	II	III	IV	Annual Avg.
1977	1,835	1,895	1,954	1,989	1,918	1,471	1,528	1,585	1,618	1,551	1,476	1,514	1,558	1,604	1,538
1978	2,032	2,140	2,203	2,282	2,156	1,653	1,737	1,792	1,858	1,760	1,638	1,692	1,748	1,809	1,722
1979	2,336	2,378	2,455	2,503	2,418	1,907	1,941	1,994	2,025	1,967	1,872	1,917	1,982	2,034	1,951
1980	2,573	2,579	2,639	2,736	2,632	2,076	2,073	2,118	2,200	2,117	2,092	2,118	2,186	2,265	2,165
1981	2,979	3,018	3,100	3,114	3,053	2,388	2,415	2,483	2,487	2,444	2,441	2,485	2,568	2,591	2,521
1982	3,113	3,160	3,179	3,213	3,166	2,483	2,514	2,528	2,548	2,518	2,614	2,656	2,684	2,729	2,671
1983	3,266	3,367	3,444	3,546	3,406	2,599	2,686	2,742	2,852	2,720	2,753	2,813	2,847	2,942	2,839
1984	3,675	3,754	3,808	3,852	3,772	2,962	3,009	3,047	3,096	3,029	3,034	3,075	3,138	3,188	3,109
1985	3,921	3,974	4,042	4,104	4,010	3,157	3,204	3,254	3,304	3,230	3,259	3,304	3,338	3,406	3,327
1986[2]	4,174	4,212	4,266	4,288	4,235	3,341	3,414	3,439	3,471	3,422	3,463	3,527	3,554	3,594	3,534
1987[2]	4,378	4,445	4,524			3,548	3,593	3,659			3,662	3,709	3,761		

[1] Seasonally adjusted at annual rates. [2] Preliminary. [3] Forecast. *Source: U.S. Dept. of Commerce* T.329

Iron and Steel

Cost-cutting, higher steel prices, and a weaker dollar allowed the U.S. steel industry to make a comeback in 1987, after four unprofitable years. U.S. raw steel production for the first ten months of 1987 was 72.66 million short tons, for an implied annual total of 87.19 million tons. This was a potential 6 percent increase over 1986's estimated 82.0 million tons. Iron ore output for the first six months of 1987 was 20.2 million tons, compared with 1986's same-period total of 22.4 million. Total 1986 iron ore production was 38.98 million tons.

The dawn of 1987 signaled a rosier future for the domestic steel industry as USX Inc., the nation's largest steel producer, resumed production early in the year. In January 1987, 46 of 47 locals of the United Steelworkers of America ratified a new four-year contract with the USS division of USX, Inc. The earlier strike, brought about by the inability of the union and USX to agree on wages or the use of non-union contractors after the old contract's expiration, had lasted a record 184 days. Steel industry analysts estimate that the strike cost USX some $3 billion in orders. As part of the settlement, USX was to eliminate about 1,346 jobs; and with union-agreed wage and benefit concessions, savings of seven percent from the old contract were expected to be realized.

The situation at USX is a brief for the entire U.S. steel industry. For years, the industry had been saddled with high labor costs, shrinking markets, and low-priced subsidized foreign competition. The result was a decline in U.S. producers' ability to compete internationally and a shrinking number of domestic players. But problems continued, as 1987 saw another major steel producer, Sharon Steel, file for protection under Chapter 11 of the federal bankruptcy laws. Sharon's filing complicated an already tangled situation involving the joint ownership of a major U.S. iron ore mining concern, since three of the six owners have filed for Chapter 11 protection.

Adding to big steel's burdens were the events of October 1987, when the world's financial community suddenly saw the New York Stock Exchange and the rest of the world's stock markets wilt on their quote machines. That unprecedented shrinkage of global liquidity was expected to have an impact on steel demand in 1988. Industry analysts were estimating that domestic steel consumption in 1988 would drop to 89 million tons, compared with 1987's projected consumption of 94 million. There were also projections that steel shipments would be no greater than 70 million tons in 1988, compared with 1987's estimated shipments of 74 million.

One bright spot in 1987 was that prices were generally firmer for the bellwether No.1 heavy melting steel scrap. Its price rose from $79/long ton in January 1987 to $109 in late fall of the same year.

In the first six months of 1987, the U.S. imported 7.02 million long tons of iron ore, a 19 percent drop from the level in the same 1986 period.

End use distribution in consumption of domestic iron and steel in recent years has been: construction, 30 percent; transportation, 27 percent; machinery, 18 percent; appliances, 8 percent; and other, 17 percent.

World Production of Raw Steel (Ingots & Castings) In Millions of Short Tons

Year	Belgium	Brazil	Canada	Czechoslovakia	China	France	Italy	Japan	Rep. of Korea	Poland	Spain	South Africa	United Kingdom	United States	USSR	West Germany	World Total
1980	13.7	16.9	17.5	16.8	40.9	25.5	29.2	122.8	9.4	21.5	13.9	10.0	12.4	111.8	163.1	48.3	789.5
1981	13.6	14.6	16.3	16.8	39.2	23.4	27.3	112.1	11.9	17.3	14.2	9.9	17.2	120.8	163.6	45.9	778.9
1982	10.9	14.3	13.0	16.5	41.0	20.3	26.4	109.7	13.0	16.3	14.5	9.1	15.1	74.6	162.2	39.6	709.9
1983	11.2	16.2	14.1	16.6	44.0	19.4	23.9	107.1	13.1	17.9	14.0	7.9	16.5	84.6	168.1	39.4	730.6
1984	12.5	20.3	16.2	16.3	47.8	20.9	26.5	116.4	14.4	18.2	14.9	8.6	16.7	92.5	170.0	43.4	782.9
1985[1]	11.8	22.5	16.0	16.6	51.5	20.8	26.2	116.1	14.9	17.7	15.7	9.5	17.3	88.3	170.5	44.6	790.0
1986[2]	10.7	23.4	15.3	16.5	57.4	19.8	25.2	108.3	14.9	18.9	13.2	9.7	16.3	81.6	177.0	40.9	781.0

Preliminary. [2] Estimate. *Source: Bureau of Mines* T.330

Average Wholesale Prices of Iron and Steel in the U.S. In Dollars Per Net Ton

	Pig Iron				No. 1 Heavy Melting Steel Scrap		Cents Per Pound at Pittsburgh								
									Steel Bars						
Year	Bessemer Neville Isl. Pa.	Iron Age Composite	No. 2 F.O.B. Birmingham	Steel Billets Pitts.	Pitts.	Chicago	Tin Plate (¼ Lb.)	Hot Rolled Sheet[2]	Hot Rolled	Cold Finished	Structural Shapes	Carbon Steel Plates	Cold Rolled Strip	Galvanized Sheets	Wire Rods-Chi $Gr. Ton
1980	200.83	203.00	191.00	348.70	95.48	86.70	23.3–24.9	18.21	19.59	28.95	18.98	20.57	27.15	23.56	19.09
1981	209.67	204.66	205.33	358.00	100.57	91.76	24.9–26.7	20.13	16.95	29.45	21.32	23.04	30.23	26.05	20.27
1982	213.00	213.00	213.00	358.00	66.47	57.78	26.3–27.9	20.80	17.23	31.06	22.90	24.25	29.75	26.90	20.48
1983	213.00	213.00	213.00	358.00	76.99	72.42	27.7–29.3	22.16	20.25	28.50	22.90	25.45	33.45	28.23	20.48
1984	213.00	213.00	213.00	368.00	92.71	83.12	29.0–30.7	23.60	22.08	29.87	22.78	24.50	35.30	30.15	20.48
1985	213.00	213.00	213.00	378.00	77.43	72.89	30.7–31.9	23.60	24.10	32.00	23.70	24.50	37.24	30.15	20.48
1986[1]	—	N.A.	—	378.00	74.87	73.49	N.A.	21.15	24.10	32.00	N.A.	18.27	37.24	27.89	20.48
1987[1]					90.58	87.22									

[1] Preliminary. [2] 10 gauge. *Source: American Metal Market* T.337

IRON AND STEEL

Salient Statistics of Steel in the United States In Millions of Short Tons

	Value of		Finished Steel Composite Price	Production							Shipments of Steel Products	
				Steel Ingots and Castings				Alloy Steel[2]				
Year	Exports (Million $)	Imports (Million $)	¢ Lb.	Basic Oxygen	Open Hearth	Electric[3]	Total	Stainless	Other	Total	Domestic Consumption	Export
1980	3,728	7,792		67.6	13.1	31.2	111.8	1.7	15.4	17.1	83.9	2.6
1981	3,649	11,286	24.22	73.2	13.5	34.1	120.8	1.7	17.6	19.3	88.5	1.8
1982	2,734	10,394	25.27	45.3	6.1	23.2	74.6	1.2	9.2	10.4	61.6	.8
1983	1,783	7,238	26.19	52.1	6.0	26.6	84.6	1.8	9.1	10.9	67.6	.5
1984	1,627	11,495	27.31	52.8	8.3	31.4	92.5	1.8	10.8	12.6	73.7	.4
1985	1,476	11,019	27.58	51.9	6.4	29.9	88.3	1.7	9.9	11.6	73.0	
1986[1]	1,404	9,348	24.79	47.9	3.3	30.4	81.6	1.7	8.5	10.2	70.3	

[1] Preliminary. [2] Included under total steel production. [3] Includes crucible steels. [4] Estimate.
Sources: American Iron & Steel Institute; U.S. Bureau of Mines T.331

U.S. Production of Steel Ingots, Rate of Capability Utilization[1] In Percent

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	82.7	85.3	88.4	83.0	69.6	58.4	53.1	54.4	62.6	72.2	79.5	77.8	72.8
1981	79.9	83.7	88.6	87.7	86.2	81.5	77.6	77.3	75.9	68.7	62.8	58.6	78.3
1982	59.3	60.9	61.7	55.2	50.9	47.7	43.8	42.4	41.9	40.2	35.9	34.0	48.4
1983	43.4	49.0	55.5	58.9	57.9	56.5	54.3	55.1	57.8	60.2	58.7	54.7	55.4
1984	69.6	76.0	79.1	80.8	79.8	71.4	65.3	60.5	57.7	58.4	57.8	52.4	68.4
1985[2]	60.9	66.1	72.1	71.6	68.9	66.3	62.1	63.2	63.4	65.2	64.7	59.7	66.1
1986[2]	69.4	71.8	71.9	73.5	69.5	63.5	59.2	52.8	54.3	56.8	56.5	54.9	63.8
1987[2]	65.5	69.5	77.3	80.3	80.2	79.7	77.3	83.9	84.4				

[1] Based on tonnage capability to produce raw steel for a full order book. [2] Preliminary. *Source: American Iron and Steel Institute* T.332

United States Production of Steel Ingots In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	10,701	10,332	11,439	10,658	9,226	7,501	6,796	7,018	7,767	9,442	10,057	10,180	111,835
1981	10,590	10,028	11,744	11,243	11,423	10,451	10,160	10,120	9,618	9,003	7,962	7,672	120,828
1982	7,737	7,178	8,049	7,006	6,678	6,050	5,719	5,538	5,299	5,262	4,546	4,456	74,577
1983	5,570	5,676	7,127	7,292	7,412	6,993	6,921	7,020	7,134	7,692	7,263	6,991	83,379
1984	7,970	8,142	9,056	8,997	9,174	7,945	7,460	6,915	6,378	6,703	6,422	6,013	92,528
1985[1]	6,984	6,851	8,269	7,872	7,830	7,292	7,010	7,130	6,924	7,351	7,051	6,728	88,259
1986[1]	7,665	7,171	7,947	7,787	7,616	6,730	6,352	5,668	5,644	6,087	5,860	5,877	81,606
1987[1]	6,248	5,992	7,375	7,402	7,641	7,349	7,324	7,494	8,073				

[1] Preliminary. *Source: American Iron and Steel Institute* T.333

Shipments of Steel Products[1] by Market Classifications in the United States In Thousands of Net Tons

Year	Appliances, Utensils & Cutlery	Automotive	Containers & Packaging	Construction	Contractors Products	Electrical Mach. & Equipment	Export	Machinery, Industrial Equip. & Tools	Oil and Gas	Rail Transportation	Steel for Converting & Processing[2]	Steel Service Center & Distributors	All Other[3]	Total Shipments
1980	1,726	12,156	5,549	12,149	3,362	2,441	2,597	4,566	5,368	3,178	3,881	16,174	10,706	83,853
1981	1,775	13,154	5,292	8,446	3,230	2,600	1,844	4,624	6,238	2,162	3,338	17,637	16,672	87,014
1982	1,337	9,288	4,470	6,283	2,287	2,003	832	2,584	2,745	1,020	3,222	13,067	12,429	61,567
1983	1,618	12,320	4,532	7,271	2,703	2,335	544	2,486	1,296	937	1,211	16,710	13,621	67,584
1984	1,635	12,554	4,337	8,614	2,563	2,363	428	2,737	1,727	1,036	4,686	17,234	13,098	73,012
1985	1,182	12,725	4,069	6,407	2,663	1,845	494	2,129	1,745	1,059	4,971	17,548	15,861	72,698
1986	1,648	11,889	4,113	7,336	3,278	2,113	495	2,076	1,023	798	5,635	17,478	12,381	70,263

[1] All grades including carbon, alloy & stainless steel. [2] Net total after deducting shipments to reporting companies for conversion or resale. [3] Includes agricultural; bolts, nuts, rivets & screws; forgings (other than automotive); shipbuilding & marine equipment; aircraft; mining, quarrying & lumbering; other domestic & commercial equipment machinery; ordnance & other direct military; & shipments of non-reporting companies. *Source: American Iron and Steel Institute* T.334

Net Shipments of Steel Products in the United States

(All Grades, Including Carbon, Alloy & Stainless Steel) In Thousands of Net Tons

Year	Cold Finished Bars	Rails & Accessories	Wire & Wire Products	Tin Mill Products	Plates	Sheets & Strip[3]	Hot Rolled Bars	Pipe & Tubing	Shapes & Steel Piling	Reinforcing Bars	Hot Rolled Sheets	Cold Rolled Sheets	Semi-Finished	Alloy	Stainless
1983	1,179	884	1,359	4,308	3,816	5,793	5,129	3,242	3,622	4,275	11,619	13,781	3,861	6,154	1,137
1984	1,158	1,239	1,222	4,062	4,342	8,357	5,791	4,276	3,983	4,315	13,133	13,664	4,314	7,482	1,248
1985	1,261	888	1,136	3,772	4,313	10,543	5,526	4,096	4,843	4,444	12,952	13,574	4,350	7,432	1,251
1986[1]	1,257	640	1,080	3,802	3,565	11,269	5,648	2,836	4,528	4,299	12,167	13,250	4,954	6,556	1,187

[1] Preliminary. [2] Excludes Hot & Cold rolled sheets & strips. Shown elsewhere. *Source: American Iron & Steel Institute* T.335

U.S. Foreign Trade of Iron & Steel Products In Thousands of Short Tons

	U.S. Imports of Iron & Steel Pdts.						Exports of Iron & Steel Pdts. from U.S.					
				Grand Total						Grand Total		
Year	Steel Mill Pdts.	Other Steel Pdts.	Iron Pdts. & Ferro-alloys	Quantity	Mil. $	Iron & Steel Scrap	Steel Mill Pdts.	Other Steel Pdts.	Iron Pdts. & Ferro-alloys	Quantity	Mil. $	Iron & Steel Scrap
1983	17,034	804	125	17,964	7,238	641	1,199	247	144	1,589	1,783	7,520
1984	26,169	1,146	173	27,488	11,495	577	977	261	174	1,413	1,627	9,498
1985[1]	24,278	1,211	218	25,707	11,019	611	930	200	136	1,266	1,476	9,950
1986[2]	20,515	1,158	210	21,884	9,348	724	924	167	106	1,197	1,404	11,704

[1] Preliminary. [2] Estimate. *Source: U.S. Bureau of Mines; American Metal Market* T.336

World Production of Pig Iron (Excludes Ferro-Alloys) In Millions of Short Tons

Year	Australia	Belgium	Brazil	Canada	China	Czech.	France	W. Germany	India	Italy	Japan	Romania	Poland	Un. Kingdom	USSR	United States	World Total
1983	5.6	8.8	14.3	9.4	41.2	10.4	15.3	29.3	10.0	11.4	80.4	9.0	10.7	10.4	121.0	48.8	510.2
1984	5.9	9.9	19.0	10.6	44.1	10.5	16.6	33.3	10.3	12.8	88.6	10.5	11.0	10.5	121.6	52.0	546.8
1985[1]	6.2	9.6	20.9	10.7	48.1	10.5	17.0	34.8	10.8	12.9	88.8	10.2	10.8	11.4	120.6	50.0	555.4
1986[2]	6.5	8.9	22.4	10.2	55.3	10.5	15.5	32.0	11.6	13.1	82.3	10.3	10.9	10.1	120.6	44.3	546.8

[1] Preliminary. [2] Estimated. *Source: Bureau of Mines* T.338

U.S. Pig Iron Production (Excluding Production of Ferro-Alloys) In Thousands of Short Tons

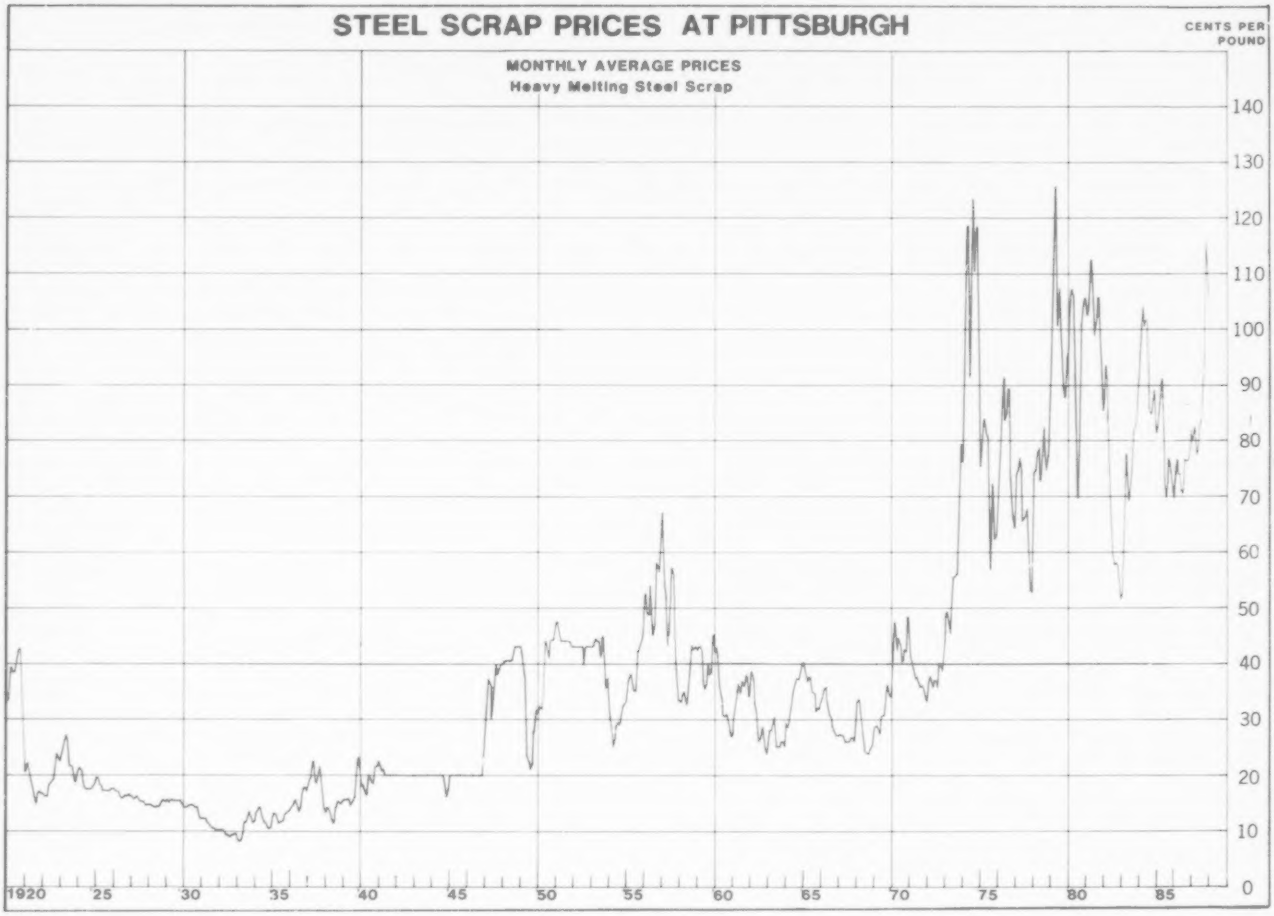
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	3,192	3,264	4,206	4,333	4,376	4,060	4,213	4,245	4,159	4,317	4,119	4,084	48,706
1984	4,310	4,497	5,083	5,077	5,166	4,565	4,329	4,057	3,473	3,739	3,817	3,694	51,904
1985[1]	3,969	3,897	4,684	4,512	4,553	4,301	4,114	4,110	3,883	4,060	3,999	3,930	50,446
1986[1]	4,297	4,002	4,341	4,341	4,284	3,697	3,526	2,966	2,982	3,161	3,097	3,146	43,952
1987[1]	3,214	3,069	3,891	4,048	4,256	4,079	4,235	4,165	4,208	4,407			

[1] Preliminary. *Source: American Iron and Steel Institute* T.341

Salient Statistics of Ferrous Scrap & Pig Iron in the U.S. In Millions of Short Tons

	Consumption: Ferrous Scrap & Pig Iron Charged To												Stocks—Dec. 31 Ferrous Scrap & Pig Iron at Consumers[1]		
	Mfg. of Pig Iron & Steel Ingots & Castings			Iron Foundries & Misc. Users				All Uses							
Year	Scrap	Pig Iron	Total	Scrap	Pig Iron	Total	Mfg. of Steel Castings (Scrap)	Ferr. Scrap	Pig Iron	Grand Total	Imports of Scrap[2]	Exports of Scrap[3]	Scrap	Pig Iron	Total Stocks
1983	49.0	49.0	98.0	11.4	1.0	12.4	1.5	61.8	50.1	111.9	.6	7.5	5.8	.3	6.2
1984	51.8	52.0	103.8	12.3	1.2	13.5	1.6	65.7	53.2	118.9	.6	9.5	5.3	.3	5.6
1985[1]	53.2	49.8	103.0	15.2	1.5	16.7	2.1	70.5	51.4	121.9	.6	10.0	5.1	.3	5.4
1986[4]	49.7	44.3	94.0	14.4	1.2	15.6	1.8	65.9	45.6	111.5	.7	11.7	4.3	.2	4.5

[1] Preliminary. [2] Including tinplate scrap. [3] Excluding tinplate circles, strips, cobbles, etc. [4] Estimate. *Source: Bureau of Mines* T.342



STEEL SCRAP PRICES AT PITTSBURGH

MONTHLY AVERAGE PRICES
Heavy Melting Steel Scrap

Consumption of Pig Iron in the U.S., by Type of Furnace or Equipment In Thousands of Net Tons

Year	Open Hearth	Electric	Cupola	Basic Oxy. Conver.	Air & Other Furn.	Direct Casting	Total	Year	Open Hearth	Electric	Cupola	Basic Oxy. Conver.	Air & Other Furn.	Direct Castings	Total
1979	12,865	905	1,026	68,526	397	3,738	87,458	1983	3,918	341	425	44,330	91	965	50,070
1980	8,606	855	698	56,414	299	2,182	69,053	1984	5,720	368	469	45,551	92	1,002	53,202
1981	8,867	583	685	62,162	254	2,489	75,040	1985[1]	4,737	503	501	44,515	56	1,100	51,411
1982	3,635	496	481	38,553	141	1,102	44,409	1986[2]	2,325	313	428	41,582	58	899	45,604

[1] Preliminary. [2] Estimate. *Source: Bureau of Mines* T.340

Wholesale Price of No. 1 Heavy Melting Steel Scrap at Chicago In Dollars Per Gross Ton

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1978	71.00	71.00	71.48	76.00	70.32	72.73	76.63	74.48	69.00	69.45	79.35	86.35	73.98
1979	93.00	103.00	121.73	110.10	91.91	106.62	98.62	89.96	86.00	86.22	91.00	91.28	96.69
1980	96.14	99.00	97.00	90.54	69.62	62.24	67.45	77.95	87.24	92.22	97.29	103.68	86.70
1981	95.00	91.11	105.14	107.55	97.50	88.00	88.45	97.76	92.52	82.64	75.00	74.41	91.76
1982	83.00	78.63	69.78	63.86	58.30	51.77	49.00	51.73	48.95	47.86	45.00	45.48	57.78
1983	56.14	67.00	77.70	70.33	65.00	70.52	70.08	74.00	78.00	78.00	78.30	84.00	72.42
1984	88.29	89.00	87.09	85.14	85.00	84.71	79.00	78.00	81.00	81.09	83.00	76.00	83.12
1985	78.86	82.16	84.76	79.59	68.00	62.00	64.24	73.00	72.00	71.87	69.00	69.19	72.89
1986	74.23	76.89	74.05	74.00	74.00	71.00	71.00	76.71	73.14	70.87	73.00	73.00	73.49
1987	78.00	78.00	73.00	72.00	74.15	77.00	78.73	84.00	96.52	116.00	115.47	103.73	87.22

Source: American Metal Market T.339

World Production of Iron Ore[3], by Specified Countries (Gross Weight) In Millions of Long Tons

Year	Australia	South Africa	Brazil	Canada	Chile	China	France	Mauritania	India	Liberia	Spain	Sweden	Peru	United States	USSR[1]	Venezuela	World Total[1]
1978	81.8	23.1	83.6	41.1	6.7	68.9	32.9	6.8	38.2	17.7	8.4	21.1	4.8	81.6	242.5	13.3	833.3
1979	90.3	31.1	102.4	58.9	7.0	65.0	31.1	9.2	39.2	18.1	8.7	25.8	5.4	85.7	237.9	15.0	888.8
1980	94.0	25.9	112.9	48.0	8.5	67.0	28.5	8.8	41.3	17.9	9.1	26.8	5.6	69.6	240.8	15.8	877.2
1981	83.3	27.9	97.9	51.2	7.6	65.0	21.3	8.6	40.7	19.4	8.4	22.9	6.0	73.2	238.6	15.3	843.2
1982	86.3	24.2	91.7	35.0	6.4	68.0	19.1	8.1	40.3	17.9	8.2	15.9	5.7	35.4	240.6	11.0	768.6
1983	69.6	16.3	87.3	33.0	5.9	70.0	15.7	7.3	38.2	14.7	7.3	14.0	4.3	37.6	241.3	9.6	728.5
1984	92.9	24.3	110.3	40.4	7.0	74.0	14.6	9.4	40.4	14.9	7.1	17.8	4.0	51.3	243.2	12.8	821.9
1985[2]	91.4	24.0	121.1	38.9	6.4	79.0	14.2	9.2	43.8	15.1	6.4	20.1	5.0	48.8	243.7	16.0	839.9
1986[1]	88.6	24.1	129.9	35.5	6.9	88.6	12.2	8.8	47.0	15.1	6.0	20.2	4.9	38.8	246.0	18.8	847.8

[1] Estimate. [2] Preliminary. [3] Iron ore, iron ore concentrates and iron ore agglomerates. *Source: Bureau of Mines* T.344

Salient Statistics of Iron Ore[2] in the U.S. In Millions of Long Tons

Year	Net Import Reliance % of Apparent Consumption	Production[3]					Shipments[4]	Value Mill. $ (at Mine)	Avg. Value $ at Mine Per Ton	Stocks—Dec. 31			Imports	Exports	Consumption	Manganiferous Shipments[5]
		Total[3]	Lake Superior	Northeast	Southeast	West				Mines	Consuming Plants	Lake Erie Docks				
1978	29	81.6	72.7	8.9			83.2	2,401.4	28.86	12.4	39.3	3.6	33.6	4.2	124.8	.3
1979	25	85.7	77.2	8.6			86.2	2,814.4	32.64	11.3	39.0	5.4	33.8	5.1	125.4	.2
1980	25	69.6	62.3	7.3			69.6	2,544.1	36.56	11.7	35.7	6.1	25.1	5.7	98.9	.2
1981	22	73.2	67.5	5.7			72.2	2,915.2	40.39	12.7	36.2	6.6	28.3	5.5	104.4	.2
1982	34	35.4	31.8	3.6			35.8	1,491.8	41.72	12.1	29.9	5.8	14.5	3.2	63.9	—
1983	37	37.6	35.6	2.0			44.6	1,945.0	43.61	4.1[6]	25.5	3.2	13.2	3.8	70.6	—
1984	19	51.3	49.7	1.6			50.9	2,247.7	44.17	5.3	24.0	2.9	17.2	5.0	72.5	.1
1985	22	48.8	47.4	1.1			49.4	2,076.7	42.03	6.0	21.3	2.4	15.8	5.0	70.6	—
1986[1]		38.8	37.6	1.3			41.3	1,472.5	35.63	3.3	17.2	2.0	16.7	4.5	61.1	—

[1] Preliminary. [2] Usable; less than 5% Mn. [3] Includes by-product ore. [4] Excludes by-product ore. [5] Iron ore; 5 to 35% Mn. [6] New classification. *Source: Bureau of Mines* T.345

U.S. Imports (for Consumption) of Iron Ore from Principal Countries In Thous. of Long Tons

Year	India	Venezuela	Australia	Brazil	Canada	Chile	South Africa	USSR	Liberia	Sweden	Peru	Norway	Total
1978	—	6,083	264	3,979	19,236	390	94	—	2,170	256	818	302	33,616
1979	54	4,563	183	3,095	22,602	245	106	—	2,190	171	456	44	33,776
1980	—	3,602	—	1,995	17,311	322	6	—	1,590	33	193	—	25,058
1981	—	5,071	—	1,738	18,845	342	—	—	2,160	87	77	—	28,328
1982	—	1,643	—	972	9,281	47	52	—	2,399	71	35	—	14,501
1983	—	1,333	—	1,276	8,832	—	—	—	1,732	68	—	—	13,246
1984	—	1,524	—	2,533	11,190	—	—	—	1,745	84	7	—	17,187
1985	—	2,068	—	2,540	8,557	164	—	—	2,206	65	121	—	15,771
1986[1]	—	2,309	—	3,693	8,696	93	—	—	1,487	104	91	—	16,743

[1] Preliminary. *Source: Department of Commerce* T.346

Total[1] Iron Ore Stocks at End of Month in the U.S. In Millions of Long Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1978	56.3	54.1	53.1	50.4	49.9	51.9	51.6	53.8	54.7	55.5	56.4	55.3
1979	53.0	50.7	47.8	46.7	46.6	48.0	51.0	51.5	52.0	54.2	55.2	55.8
1980	53.7	51.8	49.0	49.6	50.7	53.5	56.8	57.5	58.0	57.7	56.6	56.1
1981	54.5	53.2	50.8	49.8	51.4	53.7	56.4	58.8	59.6	60.4	60.1	60.2
1982	60.4	60.9	57.3	57.7	57.6	58.5	59.1	57.8	55.8	54.5	52.6	52.6
1983	45.5	42.6	39.6	37.5	37.2	37.4	37.0	35.3	35.7	34.7	33.8	32.6
1984[2]	30.1	28.4	26.3	26.2	27.4	29.2	30.9	31.6	32.2	33.3	33.7	32.1
1985[2]	30.4	28.9	25.1	28.0	29.0	29.8	29.6	30.7	31.2	30.6	29.9	29.4
1986[2]	27.3	26.2	25.1	24.0	25.0	25.1	24.9	23.4	23.7	23.6	22.7	22.1
1987[2]	21.8	21.8	20.9	19.9	19.0							

[1] All stocks at mines, furnace yards and at U.S. docks. [2] Preliminary. *Source: American Iron Ore Association* T.347

Lard

World lard production for the 1986/87 season was estimated by *Oil World* at 5.58 million tonnes, up 2 percent from the previous season. The largest producers were China and the USSR, together providing 37 percent of total world output. Both countries showed production increases of about 3.5 percent. World disappearance was also forecast to be up 2 percent, with declines seen only in the U.S., Brazil, Japan, and the U.K. World ending stocks were projected at 293,000 tonnes, up from 285,000 in 1985/86.

The U.S. accounts for 6 percent of world production. Domestic lard in 1986/87 was estimated by *Oil World* at 396,000 tonnes, off 2 percent from 1985/86, and reflecting the seventh consecutive seasonal decline. The drop in production was mainly the result of reduced hog slaughter through most of the period.

Domestic disappearance of lard was forecast at 357,000 tonnes, off nearly 2 percent from 1985/86. Consumption in baking and frying fats accounted for the bulk of edible use. U.S. imports of lard for the period were estimated at 1,000 tonnes, unchanged from a year earlier, while exports were forecast at 38,000 tonnes, off 25 percent. According to USDA, U.S. lard prices (loose, tanks, Chicago) averaged 14.78 cents/lb. during the 1986/87 season, up from 14.38 cents in 1985/86.

With domestic hog slaughter levels forecast to rise 5 percent in the last quarter of 1987 and 8 percent through the first half of 1988, 1987/88 lard production was also expected to increase.

Supply and Distribution of Lard in the United States In Millions of Pounds

	Supply							Distribution							
	Production									Domestic Disappearance					
	Commercial											Direct Use as Lard			
Year	Federally Inspected	Other	Total	Farm	Total Production	Stocks Jan. 1[2]	Total Supply	Exports	Total Disappearance	Domestic Disappearance	Shortening	Margarine	Civilian	Military	Per Capita Lbs.
1983	973	—	973	—	973	37	1,010	89	976	889	277	30	489	1	1.8
1984	939	—	939	—	939	34	973	89	935	846	264	40	491	1	2.1
1985	927	—	927	—	927	39	966	105	930	826	284	62	425	1	1.8
1986[1]	876	—	876	—	876	35	911	104	785		327		417	1	1.7

[1] Preliminary. [2] Factory & warehouse. *Source: Economic Research Service, U.S.D.A.*

T.348

Lard Exports[2] of the United States by Selected Country of Destination In Thousands of Metric Tons

Year	Asia	Belgium & Lux.	Canada	Belize	Bolivia	Neth. Antilles	Colombia	West Germany	Haiti	Mexico	Ecuador	Netherlands	Poland	United Kingdom	Yugoslavia	Total
1982	1.1	1.0	11.4	1.4	0	.6	.1	—	2.1	24.6	—	—	0	.6	—	46.7
1983	5.4	1.0	7.3	1.5	—	.4	.1	—	1.5	19.7	—	—	—	.4	—	40.2
1984	.1	0	9.1	1.4	.1	.3	.1	—	.1	28.6	—	—	0	—	—	40.4
1985[1]	—	0	5.6	.9	.1	.1	.1	—	3.5	35.6	—	—	—	—	—	47.4

[1] Preliminary. [2] Excludes exports for civilian relief & shipments by CARE. *Source: Foreign Agricultural Service, U.S.D.A.*

T.352

United States Commercial[1] Production of Lard In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	73.0	66.0	84.0	81.0	79.0	79.0	73.0	81.0	84.0	90.0	94.0	88.0	973
1984	79.0	74.0	86.0	79.0	81.0	72.0	66.0	76.0	74.0	90.0	84.0	78.0	939
1985	81.0	70.0	78.0	81.0	83.0	70.0	72.0	77.0	76.0	85.0	78.0	76.0	927
1986	80.0	68.0	76.0	81.0	76.0	67.0	67.0	66.0	71.0	80.0	69.0	75.0	876
1987[2]	76.0	66.0	74.0	73.0	66.0	67.0	68.0	68.0	71.0	78.0	78.0		

[1] Includes "Rendered Pork Fat." [2] Preliminary. *Source: Department of Agriculture*

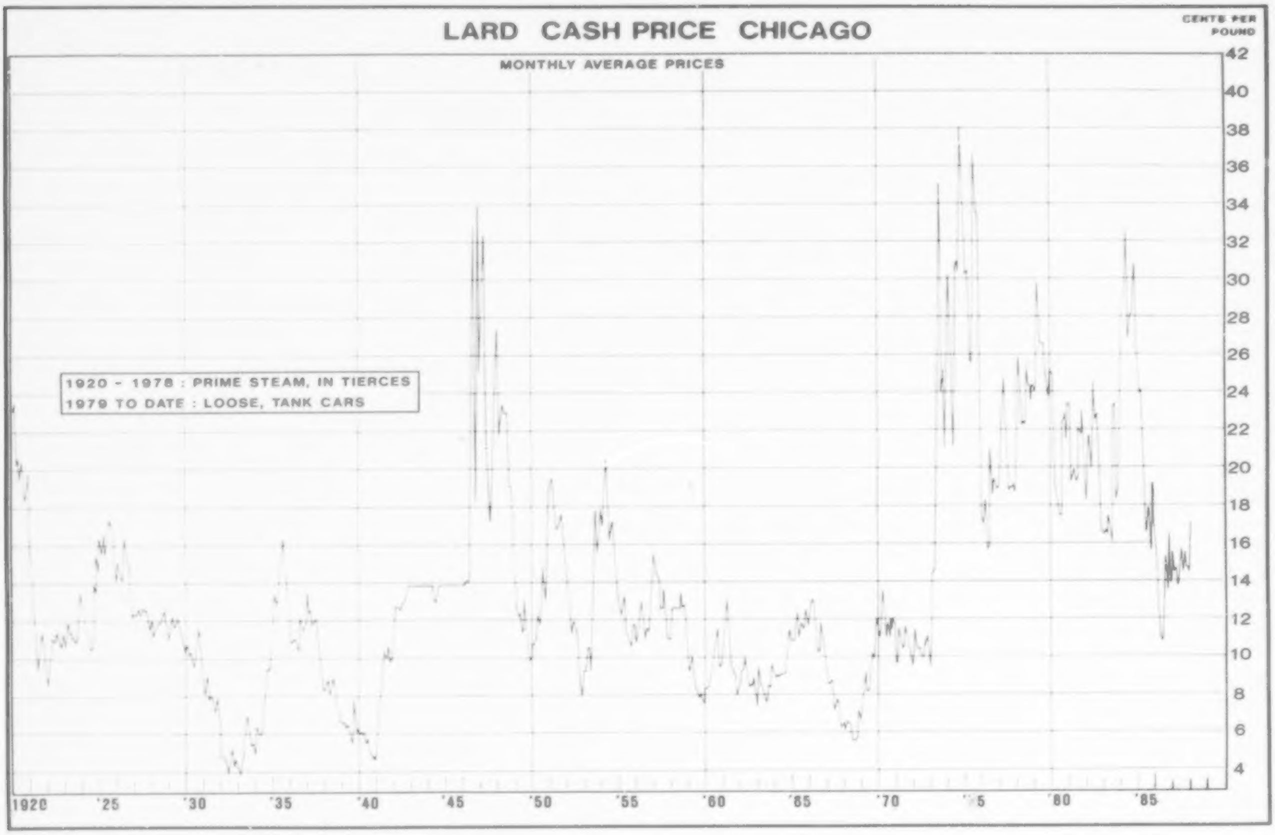
T.354

Consumption (edible & inedible) of Lard in the United States In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1983	25.4	27.2	29.3	32.2	41.9	37.1	30.1	34.4	31.7	33.8	38.9	38.3	400
1984	33.9	27.6	30.5	29.3	33.4	26.0	25.8	26.2	23.1	31.1	37.5	30.5	355
1985	34.1	29.6	30.0	30.1	31.2	29.3	27.9	30.8	36.4	44.5	43.0	33.4	400.3
1986	33.3	31.4	35.6	38.1	35.6	33.8	26.3	23.3	27.5	28.4	28.9	25.6	367.8
1987[1]	20.2	20.0	25.9	21.3	18.5	28.0	26.8	22.3	33.0	27.4	25.9		

[1] Preliminary. *Source: Economic Research Service, U.S.D.A.*

T.349



Average Wholesale Price of Lard—Loose, Tank Cars, Chicago In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	24.5	24.0	25.1	29.8	26.8	—	—	—	26.6	25.1	23.8	25.1	25.6
1980	22.0	21.6	19.3	19.0	18.0	17.5	17.5	22.5	23.0	21.6	23.3	23.3	20.7
1981	20.0	19.0	19.6	19.9	19.4	19.6	22.0	21.8	22.8	21.5	21.0	18.4	20.3
1982	20.0	21.5	20.0	22.0	23.0	24.6	22.6	22.8	21.3	21.0	17.3	16.5	21.1
1983	16.4	16.7	16.4	17.4	17.1	16.4	16.1	23.2	23.4	18.3	18.7	18.8	18.2
1984	25.9	26.3	28.9	29.1	32.8	29.5	26.8	28.1	28.2	30.5	30.8	26.4	28.2
1985	24.6	24.0	24.1	22.7	20.0	18.1	16.9	17.8	15.8	15.4	19.2	16.5	19.6
1986	16.0	15.5	12.3	11.3	10.6	11.3	14.9	15.2	13.6	16.5	13.9	14.2	13.7
1987	15.5	14.4	14.6	13.7	14.7	14.9	15.7	14.5	15.5	14.7	14.7	14.4	14.8

Source: Economic Research Service, U.S.D.A. T.350

United States Cold Storage Holdings of all Lard[1], on First of Month In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1979	38.1	40.5	39.6	35.8	42.8	47.9	46.0	51.4	46.4	43.9	44.7	52.0
1980	49.9	54.4	61.3	62.5	57.9	51.7	59.1	57.1	55.0	43.5	44.6	48.7
1981	49.4	50.4	46.9	42.2	40.5	40.1	40.7	42.6	39.5	35.6	36.7	39.1
1982	37.0	35.3	32.5	34.0	32.7	31.8	31.4	25.5	32.2	24.2	29.5	39.0
1983	37.5	38.3	31.5	36.1	39.1	43.0	41.8	41.0	35.6	40.4	41.4	45.8
1984	34.2	34.1	28.5	29.1	31.2	38.1	34.4	32.9	33.1	29.9	37.8	33.1
1985	38.7	33.7	36.6	37.1	42.0	43.1	47.3	42.2	41.0	41.3	39.3	35.9
1986	35.4	37.6	36.4	40.8	39.8	35.5	27.3	32.1	28.3	21.6	30.6	29.7
1987[2]	21.9	31.5	31.4	27.2	28.9	29.9	27.4	27.8	28.9	28.8	38.2	36.3

[1] Stocks in factories & warehouses (except that in hands of retailers). [2] Preliminary. *Source: Bureau of the Census* T.351

Lead

The lead business was relatively active in 1987, and the year brought some quick changes among the top U.S. battery manufacturers, most of whom are also major secondary lead producers.

Estimated lead consumption in the U.S. during the first nine months of 1987 was more than 50,000 tonnes above the total in the comparable 1986 period. Nearly all of the growth came from the battery sector, including industrial and traction battery manufacturers. As a result, the price of 42 cents/lb. for lead in 1987 was the highest average constant dollar price of the century.

In the first nine months of 1987, U.S. consumption was 879,800 tonnes, compared with 1986's total consumption of 1.12 million tonnes. Of that 1986 total, about 76 percent was used in storage batteries. In the 1987 fiscal year (July 1986-June 1987), demand for lead by storage battery manufacturers was about 900,000 tonnes.

If industrial and traction battery production is included, industry trade associations estimate that 8 million surplus batteries were produced in fiscal 1987. Monthly shipments averaged about 6.2 million batteries, and there was an increase in manufacturers' inventory levels.

In the first three quarters of 1987, domestic production from primary and secondary sources combined was 503,800 tonnes, for an implied annual 672,000 tonnes, up a potential 9 percent over 614,900 tonnes in 1986.

In March, Exide Corporation, then the fifth largest domestic battery producer, announced its intentions to acquire General Battery Corporation, the third largest battery maker. In an example of corporate math, the new entity became the second largest U.S. battery producer.

At the end of August, GNB Inc., a top-tier domestic battery manufacturer and secondary lead producer, announced that it had been bought by Australia's Pacific Dunlop (the parent of Pacific Chloride Inc., another major U.S. battery manufacturer and secondary lead producer).

The U.S. imports lead ore, refined bars, and pigs, and Canada is the biggest supplier. For the first seven months of 1987, lead ore imports from Canada rose sharply to 113,416 tonnes, compared with full-year 1986 ore imports from that country of 62,900 tonnes. Total 1986 ore imports from all sources were 86,747 tonnes.

Importation of refined lead pigs and bars in the first nine months of 1987 was 125,949 tonnes, versus full-year 1986 imports of 140,221.

World-wide, there was no significant increase in available metal, as European stocks were low and Canadian production was affected by strikes.

Futures Market

Lead futures are traded on the London Metal Exchange (LME).

World Smelter (Primary & Secondary) Production of Lead In Thousands of Metric Tons

Year	Australia[3]	Belgium[4]	Bulgaria	Canada[3]	China[2]	France	W. Germany	Japan	Mexico[3]	Peru[3]	Spain	United States	U.K.[3]	USSR	Yugoslavia[3]	World Total
1978	356.0	76.5	120.0	245.9	160.0	151.4	305.0	293.9	215.4	74.3	122.2	1,337	253.4	620.0	140.4	5,133
1979	427.1	60.7	119.0	252.4	170.0	159.9	316.6	294.3	223.0	90.7	127.0	1,380	276.5	690.0	133.6	5,628
1980	393.9	83.9	119.0	234.6	175.0	162.5	301.4	315.6	189.0	84.9	120.7	1,224	241.4	700.0	124.7	5,397
1981	401.8	88.2	119.0	238.2	175.0	163.9	362.3	332.3	194.7	84.2	117.1	1,139	224.5	715.0	120.5	5,384
1982	428.7	80.9	118.0	238.9	175.0	140.4	350.4	311.9	179.4	73.8	131.6	1,088	209.3	730.0	109.0	5,265
1983	405.9	84.4	116.0	242.0	195.0	128.5	352.5	317.2	197.8	72.7	143.8	1,018	226.0	745.0	127.1	5,239
1984	399.8	101.5	116.0	252.0	195.0	131.4	357.2	337.1	204.8	75.2	160.0	1,029	227.4	755.0	130.0	5,439
1985[1]	398.9	75.3	116.0	239.5	195.0	145.8	356.3	351.6	234.0	86.8	156.1	1,103	215.1	765.0	150.0	5,587
1986[2]	356.5	80.0	115.0	250.0	195.0	152.5	365.9	348.0	232.0	71.3	133.0	981.1	200.0	770.0	150.0	5,413

[1] Preliminary. [2] Estimated. [3] Refined & bullion. [4] Includes scrap. *Source: Bureau of Mines* T.355

Consumption of Lead in the United States by Products In Thousands of Metric Tons

Year	Ammunition	Bearing Metals	Pipes, Traps & Bends[2]	Cable Covering	Calking Lead	Casting Metals	Glass & Ceramic Pdt's	Paints	Sheet Lead	Solder	Storage Battery Grids, Post, etc.	Storage Battery Oxides	Gasoline Additives	Type-Metal	Brass and Bronze	Total Consumption
1978	55.8	9.5	10.5	13.9	9.9	3.6	—91.6—		12.6	68.4	412.6	466.7	178.3	10.8	16.5	1,432.7
1979	53.2	9.6	7.2	16.4	8.0	22.7	48.8	26.7	20.4	54.3	375.6	438.8	186.9	10.0	18.7	1,358.3
1980	48.7	7.8	8.6	13.4	5.7	19.0	45.4	20.7	19.8	41.4	302.2	343.1	127.9	9.0	14.0	1,070.3
1981	49.5	6.9	8.8	12.1	5.5	18.6	44.3	16.3	19.4	29.7	342.2	428.0	111.4	7.8	13.3	1,167.1
1982	44.2	6.1	8.6	15.2	4.1	25.1	34.5	13.4	15.2	28.5	312.6	391.7	119.2	2.8	11.4	1,075.4
1983	43.7	5.8	13.1	10.5	3.6	16.2	39.7	15.4	14.2	28.5	382.3	424.6	89.1	2.5	11.0	1,148.5
1984	47.8	4.7	13.7	12.3	4.0	15.8	46.1	17.4	14.7	24.4	426.3	439.2	78.9	2.2	7.0	1,207.0
1985	50.2	5.4	11.9	15.5	2.3	19.4	44.1	14.1	14.8	21.4	468.7	372.2	45.7	1.6	7.8	1,148.3
1986[1]	44.4	5.5	12.5	17.1	1.8	10.3	40.8	14.4	17.3	21.3	488.9	364.9	28.5	.3	8.4	1,124.8
1987[3]	50	3.8	5	18	1	3		-	9	10	—750—				6.5	1,200

[1] Preliminary. [2] Building. [3] Estimate. *Source: Bureau of Mines* T.358

Salient Statistics of Lead in the United States In Thousands of Metric Tons

Year	Net Import Reliance as a % of Apparent Consumption	Production of Refined Lead From					Total Value of Refined Mil. $	Secondary Lead Recovered				Total Value of Secondary Mil. $	Dec. 31 Stocks		Avg. Price (¢ per Lb.)	
		Domestic Ores[2]	Foreign Ores[2]	Total Primary	Secondary Sources	Total		As Refined Metal	In Antimonial Lead	In Other Alloys	Total		Producers' Stocks[3]	Consumers' Stocks	New York	London
1976	15	515.8	76.5	592.3	—	592.3	301.6	282.1	310.2	66.8	659.1	335.7	110.4	117.6	23.10	20.46
1977	13	486.7	62.0	548.7	.1	548.8	371.4	303.1	383.4	71.1	757.6	512.8	91.1	121.4	30.70	28.00
1978	12	501.6	63.5	565.2	1.2	566.4	419.3	282.6	409.9	76.5	769.2	570.7	98.7	125.2	33.65	29.86
1979	5	530.0	45.6	575.6	2.9	578.5	668.0	352.2	378.8	70.3	801.4	930.0	89.3	153.2	52.64	54.52
1980	[5]	508.2	39.4	547.6	2.1	549.7	512.6	315.2	306.7	53.7	675.6	632.4	126.0	126.2	42.46	41.21
1981	1	440.2	55.1	495.3	1.7	497.1	398.9	282.2	304.4	54.6	641.1	516.3	140.2	123.2	36.53	33.30
1982	11	459.9	52.3	512.2	.7	512.8	288.4	240.5	284.4	46.4	571.3	321.7	125.5	97.2	25.54	24.66
1983	20	459.3	55.2	514.6	.6	515.2	245.9	189.6	271.6	42.3	503.5	240.7	106.7	100.8	21.68	19.27
1984	20	330.2	65.4	395.6	1.0	396.6	222.8	263.4	327.8	42.1	633.4	266.3	135.1	97.1	25.55	20.12
1985	13	416.1	71.4	487.4		488.0	204.9	273.7	299.3	42.7	615.7	258.9	128.0	93.1	19.07	17.84
1986	20	344.2	22.1	366.2		400.0	178.0	280.5	290.1	44.3	614.9	298.9	87.0	83.8	22.05	18.43
1987[4]		—		400							650			66.0	42.00	

[1] Preliminary. [2] And base bullion. [3] At primary smelters & refineries. [4] Estimates. [5] Net exporter. *Source: Bureau of Mines* T.357

U.S. Mine Production of Recoverable Lead In Thousands of Metric Tons

Year	Arizona	California	Colorado	Idaho	Illinois	New York	Missouri	Montana	Nevada	New Mexico	Oklahoma	Utah	Virginia	Washington	Wisconsin	Total U.S.[2]
1976	.3	.1	24.3	48.7	N.A.	2.9	454.5	.1	.5	N.A.	N.A.	14.8	1.8	N.A.	N.A.	553.0
1977	.3	—	20.9	42.9	N.A.	2.5	453.8	.1	.7	N.A.	N.A.	9.7	2.0	1.1	N.A.	537.5
1978	.4	N.A.	15.2	44.8	N.A.	1.0	461.8	.1	.7	N.A.	—	2.5	1.8	N.A.	N.A.	529.7
1979	.4	N.A.	7.6	42.6	N.A.	.5	472.1	.3	—	N.A.	—	N.A.	1.6	—	N.A.	525.6
1980	.2	N.A.	10.3	38.6	N.A.	.9	497.2	.3	—	—	—	—	1.6	N.A.	—	550.4
1981	1.0	N.A.	11.4	38.4	N.A.	1.0	389.7	.2	N.A.	N.A.	—	1.7	1.6	—	—	445.5
1982	.4	N.A.	N.A.	N.A.	N.A.	1.1	474.5	.7	N.A.	N.A.	—	N.A.	—	N.A.	—	512.5
1983	.2	N.A.	N.A.	25.9	N.A.	1.3	409.3	1.2	—	.3	—	—	—	—	—	449.3
1984	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	278.3	N.A.	—	—	—	N.A.	—	—	—	322.7
1985	.6	—	N.A.	33.7	N.A.	N.A.	371.0	.8	—	N.A.	—	—	—	—	—	414.0
1986[1]	N.A.	—	N.A.	10.0	N.A.	N.A.	319.9	N.A.	—	N.A.	—	—	—	—	—	339.8

[1] Preliminary. [2] Includes Alaska. [3] Estimate. *Source: Bureau of Mines* T.356

U.S. Foreign Trade of Lead In Thousands of Metric Tons

Year	Exports					Imports for Consumption						General Imports From:						
												Ore, Flue Dust & Matte			Pigs & Bars			
	Ore & Concentrate	Unwrought Lead[3]	Wrought Lead[4]	Scrap	Drosses, Etc.	Ores, Flue Dust or Fume & Mattes	Base Bullion	Pigs & Bars	Reclaimed Scrap, Etc.	Value Million $	Australia	Peru	Canada	Australia	Mexico	Peru	Canada
1977		4.3	4.7	77.5		88.8	7.3	230.1	3.5	196.9	16.6	6.6	16.0	19.9	71.8	30.4	75.4
1978		3.2	5.1	98.6		61.9	4.3	225.4	3.3	203.0	6.5	6.3	19.6	16.3	80.2	25.7	70.4
1979		7.4	3.3	119.7		44.4	1.7	182.6	4.0	248.3	1.9	12.4	12.8	17.3	73.6	17.9	
1980	27.6	156.5	8.0	119.7		29.6	.3	81.3	2.9	116.5	3.0	18.0	8.5	11.3	28.6	3.3	34.9
1981	33.0	16.8	6.5	59.4		27.2	.4	100.1	2.7	110.5	2.2	14.1	23.5	10.9	33.7	2.9	50.8
1982	29.1	51.0	4.6	51.8		18.9	—	94.9	4.8	69.9	7.7	14.5	4.8	7.3	23.5	8.3	49.8
1983	20.1	17.7	2.8	50.9		19.8	.1	134.4	4.2	89.9	10.0	22.7	6.1	10.9	34.9	10.1	72.7
1984	11.9	5.0	2.5	45.1	9.1	29.9	—	161.5	5.0	104.2	17.0	22.7	14.1	10.9	39.5	9.2	94.9
1985	10.0	25.4	2.0	59.9	10.0	2.6	.8	131.4	3.2	59.0	12.3	15.2	5.2	3.6	33.8	5.2	90.1
1986[1]	4.4	11.2	1.4	59.0	7.2	4.6	.1	140.2	3.3	63.9	11.5	8.4	62.9	—	29.5	1.1	105.3
1987[2]	7.5			50	6.0	1.0	12.0	175.0	5.5		2.0	13.0	180.0		40.0	.8	80.0

[1] Preliminary. [2] Estimate. [3] And lead alloys. [4] Blocks, Pigs, etc. *Source: Bureau of Mines* T.359

LEAD

Average Price of Pig Lead, U.S. Primary Producers (Common Corroding)[1] In Cents Per Pound

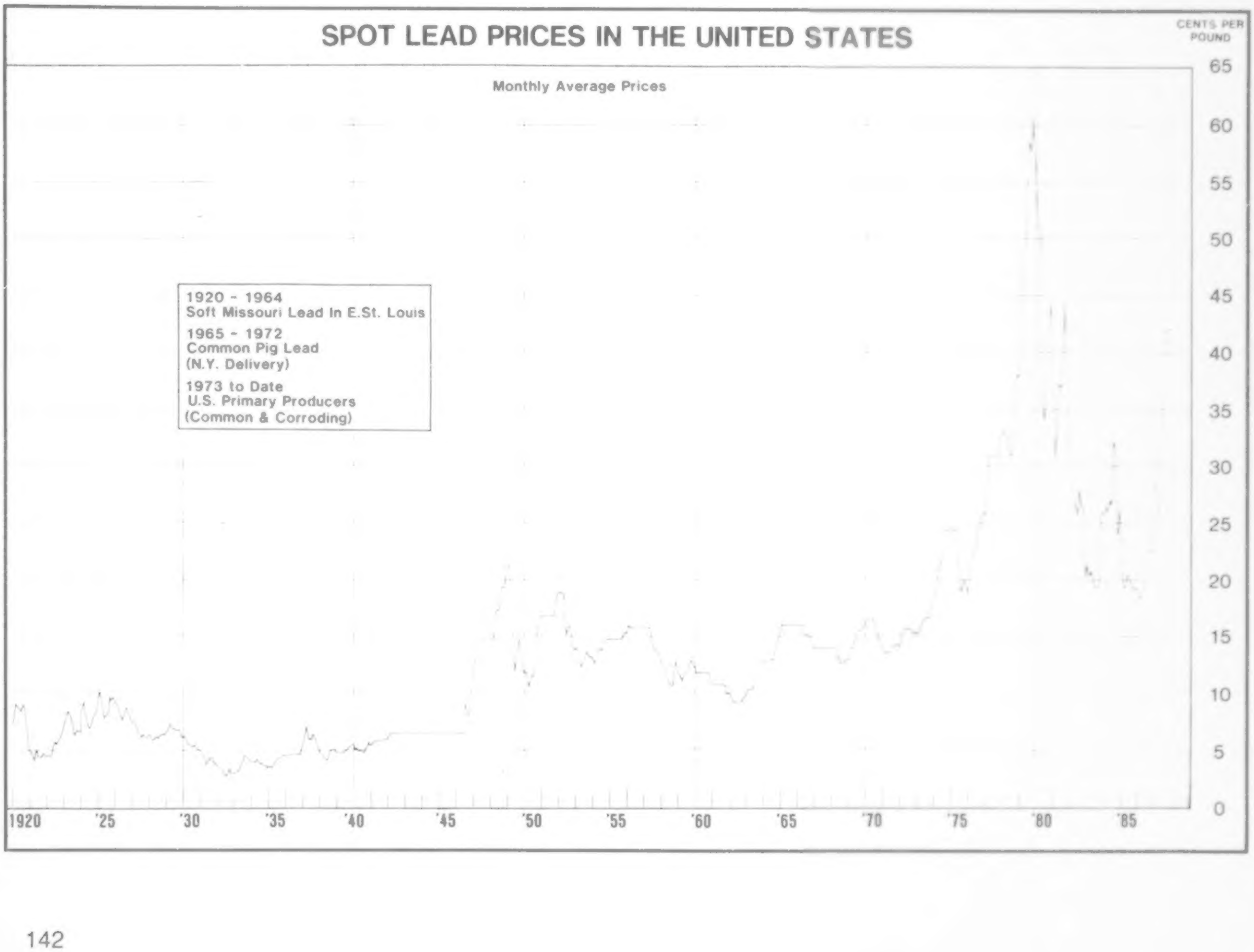
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	51.06	50.00	49.52	45.34	36.00	34.19	35.95	40.95	42.43	45.00	44.06	40.43	42.91
1981	34.13	30.63	35.32	37.68	37.10	38.23	41.25	44.64	42.52	37.59	34.34	31.75	37.10
1982	29.90	28.89	27.98	26.57	26.50	25.89	27.88	27.45	26.64	23.12	21.48	20.12	26.03
1983	21.60	20.87	20.43	21.00	20.10	19.34	19.30	19.38	22.24	25.62	26.00	25.69	21.80
1984	26.38	26.00	26.45	27.00	26.55	29.00	32.14	30.13	25.68	24.04	26.42	23.11	26.91
1985	20.45	19.76	19.24	20.48	20.50	20.00	19.88	19.32	19.44	18.97	19.06	19.05	19.68
1986	18.70	18.41	18.55	18.93	19.58	22.41	22.63	22.52	23.43	25.53	27.93	28.37	22.25
1987	27.75	26.03	26.00	27.91	35.10	36.77	41.82	42.00	42.00	42.00	42.00	42.00	35.95

[1] N.Y. Delivery. *Source: American Metal Market* T.360

Refiners Production[1] of Lead in the United States In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	56.9	49.3	54.1	47.5	47.0	47.1	52.0	48.2	50.2	52.2	48.4	53.5	606.4
1981	58.0	53.6	58.2	52.7	35.0	24.4	33.0	45.1	43.7	46.1	39.4	44.0	533.2
1982	50.3	45.2	44.0	36.1	54.3	53.0	44.2	46.4	49.2	50.6	50.8	48.6	572.6
1983	57.0	50.9	52.8	48.9	47.2	42.0	39.5	45.3	41.2	50.0	50.9	46.4	572.3
1984	51.5	51.4	43.0	40.0	39.2	26.2	28.4	29.1	25.3	40.8	28.0	26.5	429.2
1985	43.1	50.3	56.3	52.7	53.4	50.9	32.5	46.6	44.9	39.3	30.1	44.5	544.5
1986	47.4	41.6	49.4	40.2	40.2	26.5	16.9	31.3	27.5	28.6	28.5	30.1	408.2
1987	38.8	33.6	36.0	33.2	34.2	29.5	28.8	30.9	33.4	37.6	39.5		

[1] Represents refined lead produced from domestic ores by primary smelters plus small amount of secondary material passing through these smelters. Includes GSA metal purchased for remelt. *Source: American Bureau of Metal Statistics, Inc.* T.362


SPOT LEAD PRICES IN THE UNITED STATES

Monthly Average Prices

U.S. Mine Production of Recoverable Lead In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	42.6	40.9	43.4	26.7	27.8	17.4	31.8	38.2	48.0	47.5	39.8	41.3	445.5
1982	40.3	43.2	48.4	44.1	41.8	42.4	36.8	42.7	41.4	44.7	41.8	45.1	512.5
1983	44.9	39.6	37.3	36.7	35.9	28.4	35.3	43.2	37.4	37.1	38.3	34.9	449.2
1984[1]	41.8	42.6	46.2	20.9	24.0	12.2	24.8	23.4	18.6	22.4	19.5	25.4	321.9
1985[1]	31.4	32.9	37.2	38.8	36.7	32.1	34.1	34.4	30.4	36.5	32.1	32.6	414.0
1986[1]	40.2	36.1	38.0	33.8	24.9	23.6	25.0	23.3	24.0	24.2	20.7	24.1	337.8
1987	23.9	23.6	27.8	23.5	27.0	26.2	28.9	23.9					

[1] Preliminary. *Source: Bureau of Mines* T.359A

Total Stocks of Lead[1] in the United States at Refiners, at End of Month In Thousands of Short Tons

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1980	67.8	75.0	71.6	83.8	90.8	82.7	66.3	53.8	35.2	29.2	46.5	60.9
1981	86.6	92.3	88.9	87.8	71.2	61.6	59.9	52.6	38.5	49.1	57.5	62.8
1982	65.4	67.2	65.9	60.1	65.1	73.2	70.8	64.9	71.4	72.9	78.0	79.0
1983	83.3	91.2	84.9	89.0	100.6	98.6	95.3	82.1	61.3	56.6	51.6	58.9
1984	63.3	70.3	76.1	81.5	84.2	83.5	84.9	78.4	64.8	66.2	53.0	49.7
1985	48.2	59.6	79.3	90.4	107.2	128.9	125.0	118.2	114.1	102.4	90.6	93.1
1986	96.1	104.1	116.4	115.8	116.7	105.9	89.1	81.0	57.8	41.9	30.0	22.5
1987	34.2	37.3	39.3	31.5	32.6	20.5	11.7	12.1	12.7	16.4	19.9	

[1] Stocks at own plant & elsewhere. *Source: American Bureau of Metal Statistics, Inc.* T.364

Total[1] Lead Consumption in the United States In Thousands of Metric Tons

Year	Jan	Feb.	Mar	Apr.	May	June	July	Aug	Sept	Oct	Nov	Dec.	Total
1982	98.7	87.9	97.2	94.5	84.7	88.4	72.4	96.7	88.3	98.3	81.5	86.8	1,075
1983	91.5	74.0	83.1	85.9	83.8	96.3	79.3	102.6	115.7	112.3	102.7	121.4	1,149
1984	112.7	94.1	96.8	89.5	87.3	96.4	82.7	97.3	96.7	103.2	96.9	95.1	1,207
1985	87.3	101.5	100.7	90.1	86.0	77.0	67.8	101.8	100.4	106.3	90.7	82.4	1,148
1986	96.7	85.4	79.6	90.8	86.0	84.1	71.0	94.9	105.8	110.4	94.8	96.6	1,125
1987	90.8	85.8	99.8	97.8	98.0	100.2	94.3	99.7					

[1] Represents total consumption of primary & secondary lead as metal, in chemicals, or in alloys. *Source: Bureau of Mines* T.365

U.S. Lead Recovered from Scrap (Lead Content) In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	59.2	55.4	59.6	59.1	51.2	57.1	45.9	52.2	56.0	50.2	58.1	54.9	675.6
1981	46.5	43.9	43.8	42.5	44.1	46.7	46.4	49.1	52.5	50.9	52.2	48.7	641.1
1982	45.5	48.2	48.0	47.6	46.1	44.8	34.4	44.2	41.9	44.6	41.9	41.5	571.3
1983	41.3	37.4	41.0	41.3	42.5	37.3	37.2	39.6	43.4	48.9	48.4	45.7	503.5
1984[1]	44.4	48.6	47.6	48.5	46.6	46.7	44.5	50.0	49.0	51.7	48.1	41.3	582.8
1985[1]	44.6	31.4	46.4	43.9	44.7	34.9	41.1	45.5	50.8	53.9	54.2	43.4	594.2
1986[1]	49.8	52.9	53.2	50.2	59.1	46.0	41.0	50.2	46.2	51.3	50.8	47.5	590.8
1987[1]	50.0	49.9	54.4	55.6	59.3	53.9	59.9	63.4					

[1] Preliminary. *Source: Bureau of Mines* T.366

Domestic Shipments[1] of Lead in the United States by Refiners In Thousands of Short Tons

Year	Jan	Feb	Mar	Apr	May	June	July	Aug.	Sept.	Oct	Nov	Dec	Total
1981	31.9	42.5	51.7	48.8	41.9	33.4	34.2	51.7	55.1	35.5	28.2	24.2	479.0
1982	39.3	35.8	37.0	30.7	40.9	37.8	41.9	48.1	42.6	46.7	39.8	39.7	480.4
1983	43.5	33.8	44.3	40.3	32.1	39.3	41.8	57.8	62.0	54.5	55.6	39.0	544.1
1984	46.6	43.8	36.6	34.6	36.4	26.7	26.9	35.5	38.5	39.1	40.8	29.6	435.2
1985	44.8	38.9	36.6	41.5	36.7	29.1	36.4	53.4	48.9	51.2	41.9	41.9	501.2
1986	44.5	33.5	37.1	40.9	39.3	37.3	33.7	39.3	50.7	44.6	40.4	37.6	478.8
1987	27.0	30.5	34.1	41.1	34.8	40.0	37.8	30.1	33.1	33.8	35.7		

[1] Includes GSA metal. *Source: American Bureau of Metal Statistics, Inc.* T.363

Lumber & Plywood

The lumber industry had a good year in 1987, despite surges in interest rates, the last of which was stopped by the stock market crash. And despite signs that U.S. economic growth would slow and housing starts would fall below the 1.62 million units of 1987, a continuing rise in home renovations and repairs was expected to contribute to shipment increases in 1988.

The U.S. produced 41.4 billion board feet (bf) of lumber in 1986, according to the National Forest Products Association (NFPA). Softwood, used to frame the single-family homes that constitute about 70 percent of U.S. housing starts, accounted for 35.3 billion bf. NFPA put first-half 1987 lumber production at 21.9 billion bf, of which 19.3 billion was softwood. Total 1987 production was estimated at roughly double the first-half totals. The Commerce Department forecast 1988 lumber shipments at 44.5 billion bf.

Canadian softwood imports continued to play a significant role in the U.S. market. In May 1986, the U.S. lumber industry filed a petition requesting a countervailing duty on them. The Commerce Department ruled in October 1986 that Canada's stumpage fees resulted in a 15-percent subsidy to Canadian producers. After this preliminary decision, U.S. importers had to post either a 15-percent bond or cash equal to the potential duty.

Canada responded with a 15-percent export surcharge on shipments to the U.S., and began talks with the U.S. to resolve the dispute. The U.S. import fee was shelved during the talks, and in December 1987 Canada and the U.S. announced an agreement. Canada imposed higher stumpage fees and rescinded the export tax for British Columbia, retroactive to December 1, 1987. This angered B.C. producers who estimated it would cost them up to $30 million. In January 1988, the tax was eliminated on lumber from the Maritime Provinces. Lumber sawed in Quebec from U.S. logs, up to a ceiling of 365 million bf a year, was already exempt from the tax.

Meanwhile, the U.S. and Canada agreed on a free trade treaty to eliminate tariff barriers over a 10-year period, beginning January 1989. However, the treaty required ratification by both the Canadian Parliament and the U.S. Senate, where special interest groups were expected to oppose parts of the pact.

Through the first seven months of 1987, U.S. softwood lumber imports fell 5 percent to 8.7 billion bf, reflecting higher interest rates and firmer prices because of the Canadian tax. However, dealers and lumber yards found their inventories were inadequate for summer demand, which was better than had been expected. Housing starts fell, but the trend toward larger homes continued, as did the growth in remodeling, particularly in highly developed suburbs. As a result, supplies tightened into August, when fears of a Canadian rail strike lead to inventory accumulation before Labor Day.

After the Canadian strike, support came from a severe drought in the Pacific Northwest. The Forest Service restricted logging, when lightning started forest fires in late August. The fires destroyed large amounts of ready-to-harvest timber in Oregon and Washington. As a result, many lumber and plywood veneer mills went into 1988 with depleted supplies of harvested logs, forcing them to plan to continue harvesting through the winter.

Cash lumber prices ended 1987 firmer than at year's beginning; the *Random Lengths* framing lumber composite price climbed nearly 19 percent to $230. The index peaked at $263 in the week ended September 4, and trended seasonally lower to $217 just before the stock market crash. The *Random Lengths* plywood composite price ended 1987 at $213, up from $204 a year earlier.

According to a survey by *Random Lengths* after the crash, retail lumber dealers were expecting 1988 to be similar to 1987. Approximately half of the dealers planned to increase inventories over the winter, and 17 percent of the respondents reported carrying more wood substitutes than in 1986. Interest rates, the federal deficit, and the Presidential election were cited as potential influences on their businesses.

The value of U.S. lumber industry shipments, in constant dollars, was expected to rise at an average annual rate of 3 percent through 1992, based on: continuing strong domestic demand, low mortgage rates, greater exports, and a modest drop in Canadian imports. The trade treaty with Canada may invalidate the final assumption, but the growth in adjustable-rate mortgages (ARMs) during 1987 helped remove the sting of higher fixed-rate mortgages during that summer. Most ARMs begin at an initial discount to the value of the index plus the spread they are based on. The lower initial rates, usually coupled with lower origination fees (fewer points to obtain the loan), should help more individuals qualify for mortgages, supporting the demand for new homes and lumber.

Consumption of softwood plywood and veneer was expected to rise by about 2 percent in 1988 and 1.5-2 percent annually through 1992. While export prospects appeared to be good, softwood plywood was losing markets to lower-cost nonveneer wood structural panel products, such as oriented strand board (made primarily from southern woods) and waferboard (made primarily from northern wood species). Demand for structural panels comes from the furniture industry and from building construction. Demand for structural wood members (the laminated and fabricated trusses, arches and beams used in framing) depends largely on housing starts. Industry shipments were expected to grow at an average annual rate of 3 percent through 1992.

Futures Market

Lumber futures are traded on the Chicago Mercantile Exchange (CME).

Salient Statistics of Lumber in the United States

Year	Industrial Roundwood Used for Production: Lumber	Pulp Products	Plywood & Veneer	Other Pdts.[2]	Total[2]	Total Imports	Total Exports	Total Consumption	Fuelwood Consumption	Consumption Consum. All Pdts.	National Forest Stumpage Prices: All Eastern Hardwoods	Douglas Fir	Southern Pine	Western Hemlock	Ponderosa Pine	Maple
	In Million Cubic Feet										$ Per 1,000 Board Ft.					
1978	6,155	3,745	1,460	400	12,595	3,755	1,845	14,485	1,570	16,055	41.10	250.30	134.50	113.60	164.70	57.40
1979	6,115	4,110	1,370	410	12,955	3,655	2,135	14,470	2,270	16,740	46.80	394.40	155.20	200.80	239.00	33.90
1980	5,300	4,390	1,175	390	12,090	3,250	2,350	12,995	3,190	16,185	52.40	432.20	155.40	212.70	206.10	37.40
1981	4,615	4,125	1,180	350	10,915	3,165	2,090	11,985	3,225	15,215	50.90	350.20	172.00	163.40	195.20	41.50
1982	4,635	3,970	1,135	345	10,825	3,015	1,995	11,840	3,480	15,320	56.40	118.20	127.20	44.50	66.90	34.30
1983	5,375	4,165	1,365	390	12,015	3,710	2,110	13,615	3,425	17,040	60.10	161.60	140.60	62.20	104.00	25.00
1984[1]	5,825	4,355	1,405	415	12,745	4,175	2,065	14,855	3,450	18,305	90.10	132.90	139.40	61.80	122.70	48.60
1985[1]											65.40	126.20	90.70	50.50	101.40	56.20

[1] Preliminary. [2] Excludes fuelwood. Includes cooperage logs, poles & piling, fence posts, etc. *Sources: National Lumber Manufacturers Ass'n.; U.S. Dept. of Commerce; Forest Service* T.367

United States Lumber Shipments In Millions of Board Feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	2,699	2,741	3,158	3,133	3,355	3,548	3,156	3,357	3,250	3,262	3,116	2,907	37,948
1979	2,813	2,756	3,279	3,107	3,329	3,087	3,128	3,408	3,106	3,224	2,777	2,589	36,909
1980	2,707	2,791	2,538	2,343	2,512	2,530	2,454	2,716	2,708	2,851	2,494	2,350	31,371
1981	2,424	2,379	2,752	2,755	2,633	2,765	2,395	2,431	2,260	2,382	2,045	1,989	29,132
1982	1,637	1,837	2,148	2,336	2,308	2,513	2,363	2,450	2,260	2,506	2,353	2,162	25,960
1983	2,435	2,290	2,632	2,683	2,775	2,764	2,537	2,669	2,737	2,795	2,404	2,445	31,358
1984	2,589	2,603	3,022	2,875	2,852	2,993	2,756	2,950	2,688	3,154	2,922	2,397	37,180
1985[1]	2,666	2,602	3,013	3,496	3,349	3,031	2,944	3,294	3,162	3,221	2,828	2,809	37,023
1986[1]	2,955	2,899	3,478	3,321	3,538	3,498	2,979	3,344	3,291	3,689	3,480	3,791	41,615
1987[1]	3,350	3,302	3,735	3,686	3,656	4,039	3,671	3,830					

[1] Preliminary. *Source: National Lumber Manufacturers' Association* T.368

Stocks (Gross) of Lumber in the United States, Beginning of Month In Millions of Board Feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1978	4,850	4,963	5,128	5,201	5,190	5,038	4,877	4,705	4,632	4,669	4,740	4,731
1979	4,795	4,811	4,932	4,964	4,975	4,868	5,003	4,893	4,843	4,875	5,063	5,207
1980	5,342	5,301	5,374	5,721	5,769	5,568	5,534	5,570	5,659	5,776	5,832	5,826
1981	5,805	5,883	6,065	6,098	6.123	6,213	6,015	6,103	6,232	6,284	6,285	6,075
1982	5,910	6,016	6,068	6,042	5,983	5,915	5,853	5,867	5,977	6,163	5,986	5,881
1983	5,724	5,770	5,950	5,997	5,924	5,824	5,772	5,817	5,858	5,870	5,862	5,964
1984	5,866	6,021	6,097	6,178	6,287	6,283	6,257	6,186	6,176	6,265	6,239	6,327
1985[1]	6,150	6,299	6,415	6,488	6,282	6,198	6,445	6,535	6,555	6,603	6,770	6,792
1986[1]	6,632	6,769	6,916	6,784	6,826	6.697	6,361	6,393	6,484	6,590	6,653	6,715
1987[1]	6,549	6,495	6,625	6,607	6,554	6,432	6,233	6,237	5,979			

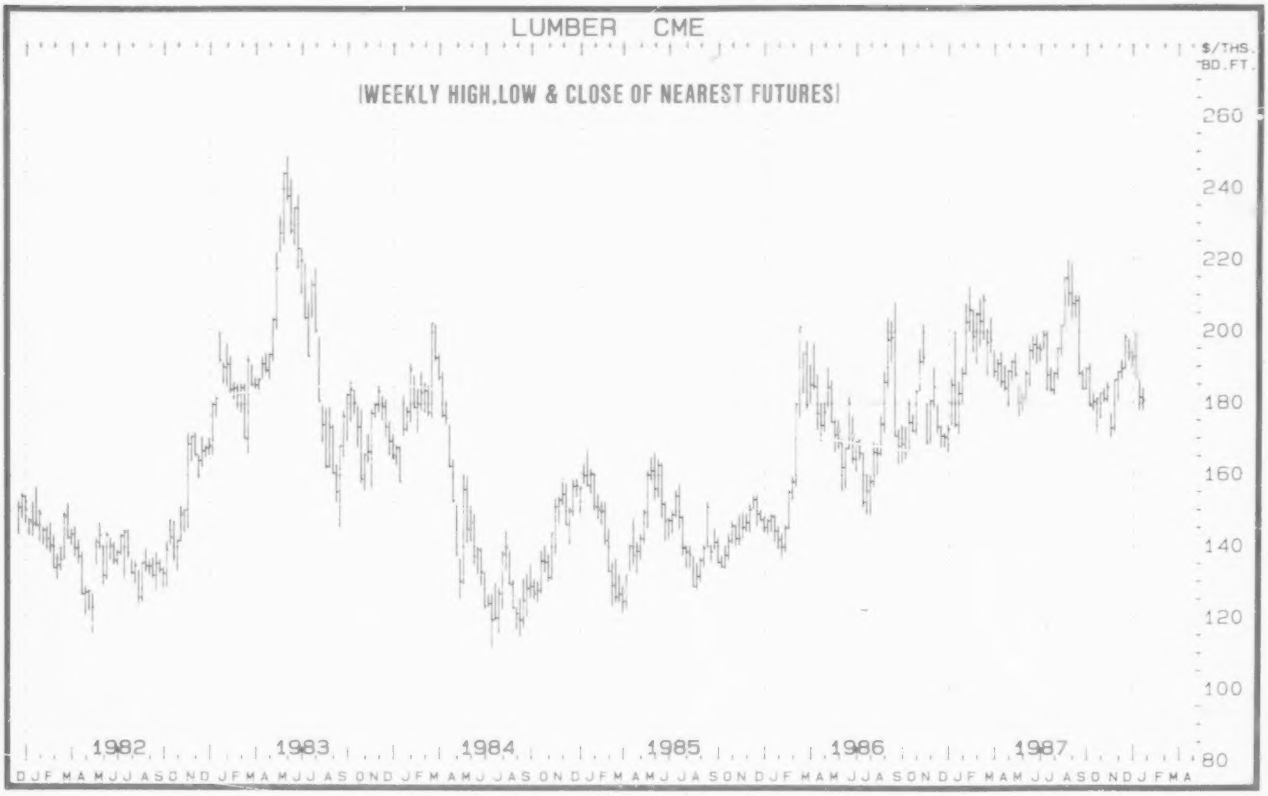
[1] Preliminary. *Source: National Lumber Manufacturers' Association* T.369

Lumber Production[1] in the United States In Millions of Board Feet

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	2,843	2,904	3,222	3,127	3,203	3,333	2,988	3,263	3,285	3,333	3,102	2,931	37,896
1979	2,877	2,877	3,306	3,119	3,219	3,143	3,018	3,355	3,131	3,412	2,914	2,631	37,445
1980	2,798	2,855	2,879	2,257	2,307	2,486	2,479	2,783	2,818	2,903	2,480	2,329	31,858
1981	2,523	2,542	2,818	2,780	2,651	2,588	2,483	2,554	2,307	2,379	1,831	1,765	29,216
1982	1,810	1,891	2,148	2,281	2,251	2,338	2,376	2,560	2,445	2,333	2,247	2,004	25,795
1983	2,484	2,481	2,682	2,623	2,645	2,718	2,585	2,714	2,748	2,787	2,504	2,345	31,479
1984	2,740	2,678	3,104	2,983	2,828	2,968	2,685	2,933	2,776	3,154	2,814	2,295	37,390
1985[2]	2,727	2,718	3,085	3,296	3,256	3,101	3,034	3,299	3,196	3,387	2,851	2,649	37,352
1986[2]	3,092	3,046	3,347	3,362	3,405	3,355	2,961	3,441	3,397	3,820	3,496	3,623	41,680
1987[2]	3,293	3,307	3,742	3,616	3,518	3,905	3,662	3,752					

[1] Adjusted with Census reports on lumber production. [2] Preliminary. *Source: National Lumber Manufacturers' Association* T.374

LUMBER



Month–End Open Interest of Lumber Futures at Chicago In Contracts

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1979	8,420	9,059	7,851	7,127	8,055	7,380	8,901	11,039	10,426	10,664	10,125	10,260
1980	10,839	10,587	9,948	10,130	11,452	11,736	12,461	11,644	13,734	14,251	12,829	9,338
1981	8,882	9,053	8,029	8,102	7,639	8,161	8,554	7,586	7,690	8,809	8,808	9,067
1982	9,328	8,982	6,990	7,460	6,578	5,648	4,629	5,789	6,088	8,282	10,490	9,915
1983	10,492	10,610	10,793	11,425	9,070	8,187	7,963	8,552	8,324	6,771	6,595	7,512
1984	8,673	8,614	8,973	8,810	7,487	7,631	7,519	8,157	7,757	8,955	9,374	9,949
1985	9,702	8,984	8,447	9,045	9,764	9,224	8,708	8,346	7,397	6,965	6,687	6,383
1986	5,783	6,936	9,571	9,471	6,342	5,519	5,039	6,356	4,784	5,673	5,646	5,844
1987	6,777	6,554	6,847	6,263	5,946	7,375	6,509	7,596	6,841	6,914	6,222	6,151

Source: Chicago Mercantile Exchange T 370

Volume of Trading of Lumber Futures at Chicago In Contracts

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1979	60,964	57,594	52,316	43,097	46,530	50,265	56,421	62,923	56,421	71,581	63,777	39,980	649,478
1980	59,063	61,288	73,412	86,057	81,960	68,528	76,296	65,740	73,660	76,984	59,076	58,376	838,676
1981	57,173	45,937	54,295	60,517	51,007	58,879	49,427	49,428	45,592	57,021	55,044	51,614	635,934
1982	51,268	45,193	44,717	44,116	40,828	47,512	34,624	35,432	29,835	47,761	51,046	44,387	516,619
1983	54,976	56,706	51,520	48,327	77,107	73,554	62,053	76,322	68,619	68,228	44,266	49,925	731,003
1984	51,170	70,031	57,075	68,314	88,009	59,592	60,156	65,739	60,035	61,012	52,496	59,939	753,568
1985	71,719	55,737	56,718	65,762	62,766	57,422	43,525	39,151	36,517	34,703	29,556	27,972	581,548
1986	29,570	34,647	61,718	64,176	44,778	49,929	35,203	42,212	44,961	35,847	28,912	30,577	502,530
1987	40,351	49,167	40,504	39,211	27,954	33,505	31,345	38,876	34,039	39,437	32,052	30,648	437,089

Source: Chicago Mercantile Exchange T 371

High, Low & Closing Prices of May Lumber Futures at Chicago In Dollars per 1,000 Board Feet

Year of Delivery		Year Prior to Delivery										Delivery Year					Life of Delivery Range
		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1980	High	—	—	—	215.0	217.0	227.0	239.5	241.0	227.5	230.2	244.4	242.2	219.3	183.0	160.0	244.4
	Low	—	—	—	208.5	211.0	214.0	222.0	197.7	201.2	216.5	215.3	215.0	181.5	153.1	146.5	146.5
	Close	—	—	—	212.7	214.6	222.7	233.5	206.3	222.8	218.4	234.1	216.3	185.5	161.5	152.2	—
1981	High	221.0	210.2	222.0	225.5	233.5	222.0	215.5	214.0	220.0	210.7	205.2	198.3	181.4	190.4	181.0	233.5
	Low	176.0	164.0	202.0	210.6	218.0	191.9	195.3	194.2	205.7	175.5	185.3	169.5	164.3	163.2	167.1	163.2
	Close	178.1	204.5	220.8	218.5	219.1	196.9	198.5	207.4	208.5	194.5	195.8	169.8	169.6	178.4	175.5	—
1982	High	—	—	—	220.3	214.3	201.5	186.0	183.0	182.8	180.0	166.5	153.1	151.9	145.2	127.5	220.3
	Low	—	—	—	204.6	199.0	183.3	160.0	157.1	162.4	163.4	147.6	142.7	137.5	120.6	115.5	115.5
	Close	—	—	—	211.0	199.3	184.0	163.2	164.8	179.2	169.1	154.0	142.9	142.4	126.8	122.6	—
1983	High	192.7	186.5	178.4	171.0	168.5	170.9	169.3	179.6	191.7	195.3	209.5	206.6	194.6	193.6	221.7	209.5
	Low	180.0	172.0	170.0	151.5	154.8	155.2	157.6	157.9	178.6	181.1	189.8	190.7	183.8	182.7	191.5	151.5
	Close	185.0	174.0	175.5	157.5	158.6	166.0	159.7	178.7	185.9	191.0	204.9	190.7	184.6	193.2	217.2	—
1984	High	237.1	240.1	245.5	234.5	231.0	221.5	213.7	217.6	209.4	205.0	194.3	199.7	201.9	188.2	150.4	245.5
	Low	228.8	228.6	222.9	221.0	214.0	200.4	195.3	198.5	196.8	189.5	184.0	182.0	186.0	148.2	125.1	125.1
	Close	231.8	239.5	230.6	228.5	214.8	207.4	213.0	199.3	202.8	194.2	185.7	197.0	186.7	148.6	130.8	—
1985	High	219.0	215.5	187.0	178.7	167.5	176.2	165.0	171.3	174.1	174.0	176.7	163.0	148.3	147.4	149.9	225.0
	Low	214.0	185.6	167.0	160.5	147.4	153.5	151.0	154.0	165.9	158.5	163.0	146.6	121.1	122.5	136.1	121.1
	Close	215.5	185.6	175.5	166.0	154.2	155.5	157.5	169.5	170.8	173.3	164.0	147.0	124.2	137.4	148.7	—
1986	High	164.5	173.0	176.4	176.0	170.5	158.7	154.9	158.2	160.5	161.9	156.6	161.9	197.0	196.5	189.5	197.0
	Low	153.0	154.0	162.0	165.5	154.5	145.2	145.6	147.7	153.0	155.0	143.3	140.0	159.1	169.0	175.1	140.0
	Close	155.0	163.0	171.1	168.1	156.9	150.3	152.7	157.4	157.9	158.1	144.3	159.9	183.9	177.4	180.6	—
1987	High	173.0	172.5	172.0	174.5	169.4	177.1	179.0	176.0	172.1	173.5	181.2	198.5	203.6	193.9	193.7	203.6
	Low	160.0	161.1	163.2	162.3	155.5	159.0	162.0	162.0	163.0	159.5	158.8	177.1	184.0	178.8	183.2	155.5
	Close	167.0	166.0	166.3	163.5	159.9	172.0	166.6	170.5	165.6	160.0	179.5	189.0	192.4	185.9	187.7	—
1988	High	—	—	—	171.0	170.8	184.5	183.0	179.5	176.8	188.3						
	Low	—	—	—	164.5	168.0	169.5	172.1	165.6	166.5	173.7						
	Close	—	—	—	169.0	169.9	181.5	172.1	168.4	174.6	181.8						

Source: Chicago Mercantile Exchange T 377

Residential Construction Contracts Awarded (All Types) in U.S. In Millions of Dollars

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1977	2,967	3,519	5,328	5,593	5,803	6,043	5,703	6,198	5,641	5,534	5,359	4,340	62,017
1978	3,925	3,863	6,333	6,850	7,691	7,917	6,823	7,120	6,496	7,080	5,973	4,715	74,949
1979	4,530	4,588	6,984	7,185	8,084	7,309	6,882	7,075	6,184	6,808	4,704	4,173	74,557
1980	4,055	4,365	4,435	4,318	4,410	5,067	6,139	6,092	6,255	6,804	5,847	5,540	63,668
1981	4,227	4,167	5,957	6,617	5,855	5,805	5,810	4,726	4,704	4,718	3,648	3,677	60,164
1982	2,991	3,045	4,542	4,645	5,060	5,674	5,188	5,354	5,560	5,548	5,784	5,401	59,210
1983	5,080	4,942	7,945	7,859	8,594	10,223	8,532	9,113	8,698	8,223	7,604	6,596	93,567
1984	6,809	6,989	9,085	9,518	10,831	9,879	9,093	9,365	8,090	8,340	7,614	5,774	101,389
1985[1]	6,354	5,881	9,374	9,443	10,331	8,819	10,608	9,971	9,465	9,598	8,015	6,976	108,662
1986[1]	6,623	6,602	9,069	11,791	11,252	10,977	10,840	10,145	10,699	11,197	8,361	8,034	120,637
1987[1]	7,350	7,518	10,628	11,276	10,260	10,986	11,279	10,919					

[1] Preliminary. *Source: F. W. Dodge Co.* T 372

United States Imports of Sawmill Products In Millions of Board Feet

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1977	691	721	906	890	996	999	934	920	938	858	956	911	10,698
1978	865	840	939	915	1,173	1,117	1,194	1,119	1,014	1,091	979	954	12,199
1979	925	761	998	925	1,237	1,011	1,010	1,043	999	924	909	771	11,513
1980	727	923	896	655	730	830	876	804	863	867	892	799	9,859
1981	756	848	966	980	992	934	842	465	660	755	728	591	9,518
1982	530	585	601	792	848	888	874	888	962	758	916	781	9,421
1983	879	933	1,055	885	1,153	1,099	1,048	1,090	1,057	1,118	1,092	885	12,293
1984	941	1,135	1,108	1,098	1,073	1,172	1,202	1,191	1,298	1,185	1,104	1,108	13,614
1985	967	1,203	1,212	420	1,431	1,445	1,318	1,308	1,307	1,395	1,146	1,039	14,178
1986	1,113	1,159	1,325	1,380	1,438	1,411	1,594	1,272	1,334	1,012	803	766	14,607
1987	1,078	1,222	1,329	1,293	1,332	1,383	1,329	1,182	1,449				

Source: Department of Commerce T 373

LUMBER & PLYWOOD

Average Index Price of Softwood Plywood—Western $ per Thousand Board Feet 1967 = 100

Year	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.	Average
1979	354.3	351.7	351.5	345.6	329.8	304.1	319.1	324.3	327.6	327.4	309.4	300.4	328.8
1980	293.8	308.0	302.3	256.9	275.4	301.7	324.5	346.2	324.0	324.2	330.3	343.3	310.9
1981	326.4	330.0	323.3	332.2	319.7	329.4	322.1	311.0	301.9	283.7	286.7	296.7	313.6
1982	291.3	288.4	288.7	283.5	279.2	287.6	282.3	278.8	274.9	272.5	276.5	284.6	282.4
1983	292.0	299.9	302.3	302.3	304.4	327.5	325.4	314.4	302.3	307.1	303.4	308.7	307.5
1984	312.4	320.1	318.0	308.7	289.7	288.8	290.3	308.6	305.2	307.2	302.4	302.4	304.5
1985	301.2	291.1	287.0	285.5	303.9	319.7	324.5	320.1	304.6	308.0	301.6	300.5	304.0
1986	300.1	298.2	312.2	329.5	321.1	311.0	310.1	307.7	311.2	309.9	308.4	304.4	310.3
1987	307.6	319.4	322.7	309.9	302.9	301.9	305.6	318.3	339.7	314.1			

Source: *Bureau of Labor Statistics* (0831–01) T.379

Average Index Price of Softwood Yellow Southern Pine (Dressed) Flooring[1] (C & Better) 1967 = 100

Year	Jan.	Feb	Mar	Apr.	May	June	July	Aug.	Sept	Oct	Nov.	Dec.	Average
1979	307.0	306.4	315.7	319.0	315.8	315.2	320.7	333.7	343.6	344.4	341.1	328.2	324.2
1980	322.0	322.2	317.2	281.2	280.1	287.3	296.4	304.1	295.1	282.3	286.9	293.7	297.4
1981	291.9	292.2	294.7	308.4	313.9	309.5	297.0	291.6	279.4	273.6	267.0	279.7	291.6
1982	278.0	273.4	273.4	285.3	283.1	298.4	305.1	288.6	287.5	279.3	284.9	293.4	285.9
1983	303.0	314.8	319.3	321.3	325.5	334.9	330.0	323.4	308.3	313.5	316.2	328.2	319.9
1984	334.0	337.8	336.1	334.5	320.4	317.1	318.8	318.4	308.5	305.4	302.4	304.8	319.9
1985	303.4	294.2	295.8	292.4	326.4	347.0	321.1	297.1	288.0	283.4	279.6	279.5	300.7
1986	288.8	288.8	304.1	324.5	317.0	306.1	302.6	303.6	295.5	287.9	289.1	290.3	299.9
1987	295.8	305.3	318.7	322.6	318.9	332.0	351.0	344.2	345.0	325.2			

[1] Flooring, C and better, F. G., 1" × 4" × S/L. *Source:* *Bureau of Labor Statistics* (0811–02) T.381

Average Index Price of Rough Softwood Lumber—No. 2 Dec. 1980 = 100

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Average
1982	97.1	96.8	97.2	96.2	95.3	94.9	95.5	94.2	94.1	93.7	92.1	91.7	94.9
1983	91.1	94.0	94.0	98.5	99.0	100.2	100.2	98.9	96.3	95.8	94.6	95.1	96.5
1984	95.9	97.5	97.8	97.6	94.9	94.8	91.5	90.4	89.9	89.2	89.8	89.1	93.2
1985	90.2	90.2	88.9	88.4	88.5	89.0	88.4	89.8	88.1	87.6	87.2	87.1	88.6
1986	86.2	86.7	87.9	89.4	90.0	90.2	90.3	90.6	90.5	90.7	91.2	92.0	89.6
1987	92.8	93.4	95.3	96.5	97.9	97.7	99.3	100.3	103.4	101.0			

Source: *Bureau of Labor Statistics* (0811–04) T.380

Average Index Price of Douglas Fir Softwood Lumber—Dimension, Construction, Dried, 2" × 4", R.L.[1] 1967 = 100[2]

Year	Jan.	Feb.	Mar	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1976	175.43	178.29	184.90	180.05	176.06	171.45	187.49	195.59	215.08	207.79	204.02	218.77	191.24
1977	228.38	225.50	232.09	226.05	225.42	213.79	230.93	242.51	256.92	237.27	218.03	227.70	230.38
1978	238.08	241.81	246.28	238.48	238.48	245.28	245.00	272.06	274.74	266.66	271.51	262.40	253.39
1979[2]	357.2	360.1	371.0	381.1	381.8	378.3	387.4	408.4	424.0	410.4	378.7	368.8	383.9
1980	363.3	367.1	358.8	327.1	329.6	353.2	358.7	360.0	357.1	354.5	352.9	353.4	353.0
1981	347.2	330.4	321.8	332.7	328.5	333.1	320.1	318.3	296.8	277.6	268.0	267.0	311.8
1982	266.4	259.4	258.5	265.6	262.1	271.8	277.8	268.9	269.6	261.8	259.9	272.5	266.2
1983	312.1	370.3	376.2	375.5	390.2	404.7	407.0	381.4	345.3	332.0	318.7	324.7	361.5
1984	322.8	351.7	369.7	364.3	335.8	322.8	307.8	309.2	312.5	301.6	312.8	325.8	328.1
1985	332.9	341.5	353.1	345.0	358.9	386.6	379.4	343.3	313.7	299.2	283.8	301.9	336.6
1986	314.2	303.6	316.1	348.0	358.2	331.1	341.4	339.3	345.4	333.5	329.4	317.6	331.5
1987	314.6	326.4	325.9	326.6	322.9	323.3	330.7	339.7	367.8	340.5			

[1] Dried, S4S, mixed carlots, f.o.b. mill, rail shipment. [2] Prices prior to 1979 are in $ per Ths. Board Feet. *Source:* *Bureau of Labor Statistics* (0811–01) T.382

Magnesium

The magnesium market had a quiet 1987, as prices were stable, and domestic production tended to sag a little in response. Magnesium imports were up, but still remained a minor part of the supply picture.

If there is one trend world-wide, it's the growth in construction of new primary magnesium complexes along with expansion and renovation of existing plants outside of the U.S. In Canada, a number of new plants have been built, the latest by Norsk Hydro A/S. The plant is expected to produce 66,000 short tons a year, which amounts to almost half of the entire annual output in the U.S. This should be one of the world's largest operations, supplying magnesium to an expanding market outside of North America.

U.S. magnesium production for the first nine months of 1987 totaled 98,584 tons, with full-year 1986 production estimated at around 130,000 tons. The U.S. is largely self-sufficient in magnesium, and imports total less than 10 percent of annual consumption. Magnesium is produced either by electrolytic or silico-thermal methods in the U.S. There are two plants that use salt diffusion techniques in an electrolytic recovery process and one company that mines dolomite ores for magnesium metal ore to be separated by silico-thermal process.

While 1987 consumption figures were unavailable at this writing, it was estimated that usage totaled 125,000 tons in the year. More than half, about 54 percent, was expected to go towards the manufacture of aluminum-based alloys, 16 percent was for castings and wrought products, and a variety of products accounted for less than 10 percent each. Magnesium has been found to be well suited to automotive purposes since it is strong, lightweight, and helps save energy. (Apparent consumption is defined as primary metal production plus recovery from scrap and net import reliance.)

Resources from which magnesium can be recovered are almost unlimited and are geographically diverse. Magnesium-bearing brines are estimated to be in the billions of tonnes; magnesium can be recovered from seawater at places along world coastlines where the salinity is highest.

World Production of Magnesium (Primary and Secondary) In Short Tons

	Primary											Secondary Production			
Year	Brazil	Canada	China	France	Italy	Japan	Norway	USSR	United States	Yugoslavia	World Total[1]	Japan	United Kingdom	United States	USSR
1975	—	4,217	1,100	8,303	6,993	9,412	42,259	66,000	N.A.		138,284				
1976	—	6,715	5,500	8,857	9,740	12,335	42,778	69,000	119,957	—	274,882	8,379	3,000	30,553	N.A.
1977	—	8,414	5,500	9,570	9,663	10,379	42,070	72,000	125,958	—	283,554	8,360	3,000	32,684	N.A.
1978	—	9,159	6,600	9,370	10,668	12,304	43,166	77,000	149,463	0	317,755	12,057	3,000	36,228	N.A.
1979	—	9,937	6,600	9,968	9,653	12,531	48,697	79,000	162,464	0	338,850	18,058	3,000	37,222	8,000
1980	—	10,199	7,700	10,282	8,693	10,199	48,890	83,000	169,477	0	348,440	26,314	3,000	40,461	8,000
1981	—	9,370	7,700	8,006	11,900	6,247	52,472	86,000	153,782	4,254	339,731	31,345	2,100	46,256	9,000
1982	331	8,700	7,700	10,593	10,960	6,123	39,598	89,000	102,197	4,697	279,899	23,887	1,940	43,232	9,000
1983	551	6,600	7,700	12,208	8,473	6,643	32,897	91,000	115,431	5,252	286,755	14,343	1,900	46,329	9,000
1984	1,323	8,800	7,700	14,299	8,257	7,830	54,343	94,000	159,207	4,700	360,459	17,258	1,102	48,357	9,000
1985[2]	2,866	7,700	7,700	15,212	8,667	9,312	60,301	96,000	149,614	5,000	362,372	23,032	992	45,523	9,000
1986[1]	3,300	7,700	7,700	15,400	13,687	8,945	60,600	98,000	138,493	5,000	358,825	16,000	1,100	46,084	9,000

[1] Estimate. [2] Preliminary. *Source: Bureau of Mines* T 383

Salient Statistics of Magnesium in the United States In Short Tons

	Production								Domestic Consumption of Primary Magnesium					
		Secondary							Structural Products					
Year	Primary (Ingot)	New Scrap	Old Scrap	Total	Exports[2]	Imports for Consumption	Consumer Stocks Dec. 31[3]	$ Price per Pound[4]	Castings	Wrought	Total	Alumin. Alloys	Other Uses[5]	Total
1975	120,203	18,090	9,783	27,873	32,591	7,903	19,664	.82	9,488	9,666	19,154	46,670	28,343	94,167
1976	119,957	19,024	11,529	30,553	13,444	14,907	17,295	.87–.92	7,051	10,241	17,292	54,320	32,841	104,453
1977	125,958	20,170	12,524	32,694	28,061	5,964	11,838	.96–.99	7,201	12,632	19,833	56,086	27,657	103,576
1978	149,463	22,135	14,093	36,228	41,807	6,668	12,583	.99–1.01	7,651	11,075	18,726	58,798	31,434	108,958
1979	162,464	23,340	13,882	37,222	54,280	4,754	13,901	1.01–1.09	7,460	11,562	19,022	60,549	29,273	108,844
1980	169,477	22,907	17,554	40,461	56,761	3,757	14,393	1.07–1.25	5,847	11,620	17,467	54,490	23,831	95,788
1981	153,782	22,073	24,183	46,256	34,855	6,897	11,367	1.25–1.34	4,951	10,376	15,327	50,518	25,616	91,461
1982	102,197	19,801	23,431	43,232	39,613	4,784	10,268	1.34	3,600	10,128	13,728	39,878	20,993	74,599
1983	115,431	21,591	24,738	46,329	46,690	6,350	11,329	1.38	3,341	11,435	14,776	46,026	21,174	81,976
1984	159,207	21,594	26,763	48,357	48,337	9,381	6,920	1.43–1.48	4,193	10,246	14,439	48,673	26,775	89,887
1985[6]	149,614	19,579	25,944	45,523	40,322	9,271	6,168	1.48–1.53	5,000	11,949	16,949	40,850	25,703	83,502
1986[1]	138,493	20,737	25,347	46,084	43,992	9,209	5,473	1.53	6,357	11,269	17,626	40,569	18,924	77,119
1987[1]	141,000				47,000	12,200	5,000	1.53						

[1] Estimate. [2] Metal & alloys in crude form, & scrap. [3] Primary magnesium. Gov't. agencies continue to hold quantities of primary magnesium. [4] Magnesium ingots (99.8%) f.o.b. Valasco, Texas. [5] Distributive or sacrificial purposes. [6] Preliminary. *Source: Bureau of Mines* T 384

Manganese

Manganese is often viewed as a political metal, since the U.S. produces none, and South Africa and the USSR are the leading suppliers. It is vital for national defense and is one of the ten strategic materials which can be imported into the U.S. under sections of the Anti-Apartheid Act of 1986.

Because of the uncertain global outlook for manganese supplies, notably in the form of high-carbon ferromanganese, a perceived strategic need for ferromanganese metal has caused the U.S. government to actively subsidize a refinery to maintain at least one domestic facility.

Manganese confounded industry analysts in 1987 by not following the general rule that U.S. manganese use tracks the steel market. Traditionally, if steel output is up, imports of managnese are generally higher. This was not so in 1987, as steel use gained, but manganese imports were near record lows.

For the first eight months of 1987 (Jan-Aug.), U.S. ferromanganese metal imports were 189,000 tons, down 33 percent from the level in the same 1986 period. Of that total, South Africa provided 74,000 tons of high-carbon ferromanganese, the largest amount, followed by France with 70,816 tons, and then Canada with 1,607 tons.

Manganese ore and dioxide imports for the same eight-month period, totaled 100,359 tons, down 24 percent from 131,498 tons in the corresponding 1986 period. Imports of silicomanganese, which have garnered increased Congressional attention because of the potential for U.S. overreliance on the Eastern Bloc, also lagged in the first eight months of 1987. According to the U.S. Census Bureau, silicomanganese imports for consumption in the first eight months of 1987 totaled 112,953 tons, down 20 percent from 1986's same-period total.

Gabon is the largest supplier of manganese ore to the U.S., with eight-month imports (Jan.-Aug.) of 87,583 tons, followed by Brazil with 51,144 tons. Japan, which supplied the U.S. with 7,128 tons of manganese dioxide, was the primary source in that category, followed by Belgium/Luxembourg with 992 tons, and South Africa with 808 tons.

In 1987, the USSR financed a Brazilian joint venture for a ferromanganese plant, which should produce 165,000 tons annually and start operating in late 1989. The Soviets are to provide a $50 million credit at 6 percent interest, and will receive half the plant's output for its first twelve years of operation.

The USSR and South Africa account for more than 80 percent of the world's identified resources, and South Africa for more than 75 percent of the resources of market economies.

World Production of Manganese Ore (Gross Weight) In Thousands of Short Tons

Year	Australia[3] 37–53[5]	Brazil 38–50	Bulgaria 29	China 30	Gabon 50–53	Ghana 30–50	Hungary[4] 30–33	India 10–54	Japan 24–27	Mexico 27–50	Morocco 50–53	South Africa 30–48	USSR 30–31	Yugoslavia 25–45	World Total
1980	2,204	2,515	54	1,760	2,366	275	91.0	1,865	87.7	492.9	144.8	6,278	10,750	33	29,086
1981	1,555	2,251	50	1,760	1,640	246	78.0	1,682	96	637	121	5,555	10,090	34	25,967
1982	1,238	2,580	50	1,760	1,667	176	91	1,642	86	561	106	5,750	10,830	30	26,701
1983	1,510	2,306	50	1,760	2,047	191	65	1,412	83	386	81	3,181	10,890	35	24,147
1984	2,038	2,969	50	1,760	2,336	296	74	1,246	68	525	65	3,361	11,100	30	26,106
1985[1]	2,208	2,976	50	1,760	2,579	320	69	1,367	23	437	48	3,969	10,900	28	26,912
1986[2]	1,818	2,976	42	1,760	2,767	309	66	1,433	7	506	40	4,100	10,700	28	26,716

[1] Preliminary [2] Estimated [3] Metallurgical Ore [4] Concentrate [5] Ranges of percentage of manganese
Source: Bureau of Mines

T 385

Salient Statistics of Manganese in the United States In Thousands of Short Tons (Gross Weight)

		Manganese Ore (35% or More Mn)							Ferromanganese				Manganiferous Ore[3]		Silicomanganese			
		Consumption by Use																
Year	Net Import Reliance as a % of Apparent Consumption	Alloys and Metal	Pig Iron Steel	Dry Cells Misc.	Imports For Consumption	Exports	Consumption	Stocks Dec. 31[2]	Domestic Production	Imports for Consumption	Exports	Consumption	Shipments	Value Mil. $[4]	Production	Shipments	Exports	Imports
1980	98	727.5	131.5	211.7	698		1,071	1,030	189.5	605.7	11.7	789.1	173.9	2.4	188	162		
1981	98	744.8	147.8	184.0	639		1,077	1,036	192.7	671.2	14.9	820.9	174.8	2.9	173	173		
1982	99	412.3	83.9	112.6	238	29	609	751	119.0	492.7	10.3	439.2	31.5	.3	69	83	3.0	62.1
1983	99	274.3	105.5	150.9	368	19	531	617	86	341.6	8.4	446.3	33.5	.2	N.A.	63	6.4	139.7
1984	98	N.A.	117.0	N.A.	338	238	615	582	N.A.	409.3	6.8	492.2	88.4	9	N.A.	N.A.	5.3	138.5
1985	100	262.7	90.0	247.0	387	56	545	589	N.A.	366.9	6.9	466.0	20.0		N.A.	N.A.	3.1	165.5
1986[1]	100	197.6	74.0	193.5	463	42	500	455	N.A.	395.7	4.3	376	14				2.0	198.6

[1] Preliminary [2] Including bonded warehouses; excludes Gov't stocks; also excludes small tonnages of dealers' stocks. [3] 5 to 35% Manganese [4] Combined value for total Manganese ore & Manganiferous ores. [5] Estimate *Source: Bureau of Mines*

T 386

Manganese Ore (35% or More Mn) Imported[2] into the U.S. In Thousands of Short Tons (Mn Content)

Year	Bel Lux.	Zaire	Brazil	Congo (Brazz.)	Canada	Ghana	Panama	Mexico	Morocco	Gabon	Australia	Turkey	South Africa	Total	Value Mill. $
1978	—	13.2	52.1	9.5	—	—	—	18.4	14.5	127.0	32.6	—	11.0	278.2	33.6
1979	—	—	51.7	22.5	—	—	—	2.1	10.7	49.2	55.3	—	52.1	243.6	27.5
1980	—	—	33.6	—	—	—	—	18.6	5.3	79.9	106.0	—	86.4	329.8	46.4
1981	—	—	38.9	—	—	—	—	25.8	13.6	90.6	34.3	—	97.5	300.7	42.6
1982	—	—	3.0	—	1.7	—	—	1.5	5.0	23.2	18.8	—	57.9	111.1	16.2
1983	—	—	39.1	—	—	—	—	25.6	—	85.5	15.1	—	12.7	178.1	19.9
1984	—	—	44.3	—	—	—	—	16.3	—	66.1	21.0	—	17.3	165.0	16.0
1985	—	—	59.8	—	—	—	—	21.8	.1	64.1	43.1	—	—	188.8	22.6
1986[1]	.2	—	38.7	—	—	—	3.2	14.8	.2	119.1	35.5	—	14.0	225.6	23.1

[1] Preliminary. [2] Imported for consumption. [3] Estimate. *Source: Dept of Commerce* T 387

United States General Imports[1] of Manganese Ore In Thousands of Long Tons—Manganese Content

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1978	94	50	113	50	71	55	82	42	97	62	64	63	842
1979	62	50	60	57	85	122	61	34	85	53	105	76	850
1980	109	56	54	66	97	68	54	67	60	38	57	69	795
1981	22	76	55	70	111	78	68	55	72	51	67	49	775
1982	65	49	65	55	22	58	35	33	14	25	32	15	477
1983	61	29	37	20	38	45	50	28	46	56	39	35	483
1984	39	63	33	64	33	68	46	52	31	37	33	35	535
1985	43	66	81	130	35	63	80	53	41	61	97	50	828
1986	66	104	53	98	51	47	75	79	93	58	76	84	883
1987	30	31	46	64	57	95	57	58	62	85			

[1] General imports of ore, concentrates manganiferous ore, manganese alloys & metals. *Source: Department of Commerce* T 388

Production of Ferromanganese in U.S., & Materials Used in Its Manufacture

Year	Ferromanganese Produced			Silico-Manganese Production (Gr. Wt.) Sh. Tns	Materials Consumed (Short tons)			
		Manganese Contained			Manganese Ore		Manganese Ore Used Per Ton of Ferromanganese & Silicomanganese	Ferromanganese shipments (Sh. Tons)
	Short Tons	Per Cent	Short Tons		Foreign	Domestic		
1977	334,134	78.8	263,136	120,000	889,296	35,769	1.9	
1978	272,530	80.6	219,707	142,000	740,906	90,660	1.9	
1979	317,102	80.2	254,389	165,000	785,664	125,130	1.8	
1980	189,472	79.7	150,982	188,000	691,250	34,877	1.9	194
1981	192,690	80.0	154,156	173,000	684,857	57,722	2.0	188
1982	119,000	82.0	97,500	69,000	412,000		2.2	98
1983	86,000	81.0	109,000	N.A.	283,000		N.A.	109
1984	N.A.	82.0	N.A.	N.A.	N.A.		N.A.	N.A.
1985[1]	N.A.	81.0	N.A.	N.A.	N.A.		N.A.	N.A.

[1] Preliminary. *Source: Bureau of Mines* T 390

Average Price of Ferromanganese[1] (78% Mn-F.O.B. Plant) In Dollars Per Gross Ton—Carloads

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Average
1976	432½	432½	432½	432½	432½	432½	432½	432½	432½	432½	425	417½	430.63
1977	417½	417½	417½	399½	399½	399½	399½	399½	399½	399½	399½	399½	404.00
1978	399½	399½	399½	399½	422.17	425	425	425	425	425	425	425	416.26
1979	440	440	440	465	490	490	490	490	490	493	510	510	479.04
1980	510	510	510	510	510	510	510	510	510	510	510	510	510.00
1981	510	510	510	510	510	510	510	510	510	510	510	510	510.00
1982	510	510	510	510	510	510	510	510	510	510	510	510	510.00
1983	510	510	510	510	510	510	510	510	510	510	510	510	510.00
1984	510	510	510	510	510	510	510	510	510	No Quotes			510.00

[1] Domestic standard. *Source: American Metal Market* T 389

Meats

On a retail-weight basis, U.S. red meat and poultry consumption in 1987 was a record 216 pounds per capita, up 1 percent from 1986. Per-person purchases of 76.4 pounds of beef and 59 pounds of pork offset lower lamb, mutton, and veal consumption to bring total per capita red meat consumption to 138 pounds, 2 percent below 1986.

Chicken consumption per capita was forecast at 63 pounds, up from 60 in 1986, and turkey consumption was expected to rise 13 percent to 15.1 pounds. Total poultry consumption was put at 78.1 pounds per person, nearly 8 percent higher than in 1986. The consumption mix of meats has changed steadily over the years, with a continued rise in poultry consumption and a decline in pork and beef.

Total red meat and poultry production in 1987 was forecast at 58.4 billion pounds, up almost 2 percent from 1986. An 8 percent rise in chicken production and 17 percent rise in turkey brought total poultry production to an estimated 20 billion pounds, 10 percent above 1986 levels. In 1988, chicken production was forecast to rise 5 percent and turkey 6 percent. Total 1987 red-meat production (commercial) was put at 38.2 billion pounds, off 2 percent from 1986. Pork production was expected to rise 1 percent to 14.2 billion pounds, on a slight increase in commercial slaughter and dressed weights. Producers were expected to respond to 1987's positive returns by increasing pork output by nearly 11 percent in 1988. Beef production for 1987 was forecast at 23.3 billion pounds, off 4 percent from 1986. Poor weather in first-quarter 1987 and current fed cattle marketings reduced supplies of market-ready fed cattle in spring 1987. Beef output in 1988 was forecast to decline 4 percent.

Retail beef prices in June 1987 reached $2.49/lb., the highest monthly average since July 1982. Prices averaged $2.42 for all of 1987. Retail pork prices in third-quarter 1987 averaged $1.96/lb., up 4 percent from 1986 and a quarterly record. But, expanded pork supplies later pressured prices, which averaged $1.87 for the year. The Eastern Region wholesale price for 8-16 pound turkey hens in fall 1987 averaged 48-52 cents/lb., down from 78 cents in 1986. The 12-city wholesale broiler price for 1987 also dropped sharply, and was 9-10 cents/lb. below the 1986 level. For 1988, larger pork and poultry output was expected to continue pressuring prices of all meats.

World Total Meat[1] Production In Millions of Metric Tons

Year	Argentina	Australia	Bel. & Lux.	Canada	Czechoslovakia	Denmark	France	West Germany	Japan	Italy	New Zealand	Poland	Brazil	South Africa	United Kingdom	United States	U.S.S.R.
1973	2.6	2.3	.9	1.5	.8	1.0	3.0	3.4	1.1	1.9	1.0	1.8	3.3	.7	2.1	15.8	9.9
1974	2.6	1.9		1.6			3.4	3.8	1.2	2.0		2.0	2.9		2.3	17.1	10.5
1975	2.8	2.4	.9	1.6	.8	1.0	3.4	3.8	1.3	1.7	1.0	2.1	3.0	.8	2.3	16.7	11.0
1976	3.2	2.7	.9	1.7	.8	1.0	3.5	3.9	1.4	1.9	1.2	2.4	3.1	.8	2.1	18.1	10.0
1977	3.3	2.0	.7	1.7	.9	1.0	3.4	3.9	1.5	2.0	1.1	2.3	3.4	.8	2.2	18.0	12.7
1978	3.5	2.8	.9	1.7	1.3	1.1	3.5	4.1	1.7	2.0	1.1	2.7	3.1	.8	2.2	17.5	13.3
1979	3.5	2.5	1.0	1.7	1.3	1.2	3.7	4.2	1.8	2.1	1.1	2.7	3.0	.9	2.2	17.1	13.2
1980	3.3	2.3	1.0	1.9	1.3	1.2	3.7	4.3	1.9	2.2	1.1	2.6	3.2	.9	2.3	17.7	12.6
1981	3.4	2.2	1.0	1.9	1.3	1.2	3.7	4.3	1.9	2.2	1.2	2.0	3.2	.8	2.3	17.7	12.7
1982	2.7	2.5	1.0	1.9	1.2	1.2	3.5	4.2	1.9	2.2	1.1	2.3	3.4	.9	2.2	17.0	12.7
1983	2.5	2.1	1.0	1.9	1.3	1.3	3.5	4.2	1.9	2.3	1.2	2.2	3.4	.8	2.4	17.8	13.6
1984	2.7	2.0	1.1	1.9	1.3	1.3	3.7	4.4	2.0	2.4	1.1	2.1	2.9	.9	2.4	17.8	14.0
1985[2]	2.8	2.2	1.1	1.9	1.3	1.3	3.6	4.4	2.1	2.3	1.2	2.3	3.0	.9	2.4	17.9	14.2

[1] Production of beef & veal, mutton & lamb, goat meat, & pork. Horsemeat included from 1976. [2] Preliminary.

Source: Foreign Agricultural Service, U.S.D.A.

T.395

Production and Consumption of Red Meats in the United States (*Carcass Weight*)

Year	Beef			Veal			Lamb & Mutton			Pork (Excluding Lard)			All Meats		
	Comm. Production (Mil. Lbs.)	Consumption Total (Mil. Lbs.)	Consumption Per Capita Lb.	Comm. Production (Mil. Lbs.)	Consumption Total (Mil. Lbs.)	Consumption Per Capita Lb.	Comm. Production (Mil. Lbs.)	Consumption Total (Mil. Lbs.)	Consumption Per Capita Lb.	Comm. Production (Mil. Lbs.)	Consumption Total (Mil. Lbs.)	Consumption Per Capita Lb.	Production (Mil. Lbs.)	Consumption Total (Mil. Lbs.)	Consumption Per Capita Lb.
1978	24,242	25,998	117.9	599	645	2.9	301	343	1.6	13,393	13,293	60.3	38,119	40,279	182.7
1979	21,262	23,522	105.5	411	450	2.0	282	332	1.5	15,270	15,353	68.8	37,225	39,657	177.8
1980	21,469	23,320	103.4	379	410	1.8	310	345	1.5	16,431	16,574	73.5	38,590	40,648	180.2
1981	22,214	23,756	104.3	415	438	1.9	327	360	1.6	15,719	15,927	69.9	38,675	40,481	177.8
1982	22,366	23,998	104.3	423	457	1.99	356	381	1.65	14,121	14,425	62.6	37,266	39,261	170.5
1983	23,060	24,710	106.2	428	457	1.97	367	388	1.67	15,117	15,369	66.1	38,972	40,924	175.9
1984	23,418	24,900	106.1	479	503	2.14	371	398	1.70	14,720	15,396	65.6	38,988	41,197	175.5
1985	23,557	25,342	106.9	499	527	2.22	352	386	1.63	14,728	15,651	66.0	39,136	41,903	176.8
1986[1]	24,213	25,823	107.9	509	544	2.30	331	376	1.60	13,998	14,925	62.4	39,051	41,668	174.1
1987[2]	23,330	24,958	103.3	425	446	1.80	308	361	1.50	14,149	15,087	62.4	38,212	40,852	169.0

[1] Preliminary. [2] Estimate. *Source: Economic Research Service, U.S.D.A.*

T.400

Total Red Meat Imports (Carcass Weight Equivalent[2]) of Importing Countries In Thous. of Metric Tons

Year	Belgium & Lux.	Canada	Czechoslovakia	France	Rep. of Korea	W. Germany	Greece	Italy	Japan	Netherlands	Spain	Switzerland	Un. Kingdom	United States	USSR
1977	121.2	194.3	21.4	556.2		627.0	110.9	612.9	649.0	175.3	59.2	26.0	1,280	1,100	496.2
1978	143.9	172.9	21.0	630.4		633.0	142.0	632.1	665.4	187.5	112.3	33.8	1,276	1,296	132.0
1979	99	140	21	541	108	648	140	684	610	149	124	25	1,245	1,348	469
1980	91	111	21	590	15	700	134	722	486	168	27	23	1,122	1,210	706
1981	88	110	21	579	45	687	80	690	612	146	16	31	1,072	1,058	786
1982	79	112	29	618	82	692	157	824	546	119	28	25	1,137	1,175	679
1983	107	121	25	676	78	728	216	832	599	108	26	27	1,072	1,212	779
1984	107	132	15	682	37	751	219	725	645	101	44	22	1,015	1,280	615
1985[1]	79	130	15	760	2	833	218	866	647	91	38	19	1,046	1,476	710

[1] Preliminary. [2] Excludes fat, offals & live animals. *Source: Foreign Agricultural Service, U.S.D.A.* T.397

Total Red Meat Exports (Carcass Weight Equivalent[2]) of Principal Countries In Thousands of Metric Tons

Year	Argentina	Australia	Brazil	Canada	Denmark	France	Ireland	Mexico	Netherlands	N. Zealand	Poland	United States	USSR	Uruguay	Yugoslavia
1977	669.6	1,335	240.0	112.1	695.6	312.2	363.8	34.1	697.2	790.9	131.8	236.0	49.2	134.6	88.0
1978	823.7	1,377	178.1	117.1	753.4	267.2	359.3	46.6	751.6	724.7	141.0	256.6	38.0	118.8	113.4
1979	728	1,306	111	133	832	306	342	7	785	783	155	211	33	84	82
1980	487	1,087	170	182	857	362	453	1	843	796	141	195	35	128	98
1981	508	966	281	207	905	415	324	1	932	817	60	240	53	185	72
1982	546	1,184	361	247	909	401	311	13	879	846	52	213	32	182	107
1983	438	947	404	242	945	387	341	14	957	938	93	225	25	236	83
1984	264	667	510	268	967	472	335	4	1,054	786	85	227	25	145	90
1985[1]	271	868	540	318	990	503	347	1	1,074	944	100	210	30	111	91

[1] Preliminary. [2] Excludes fat, offals & live animals. *Source: Foreign Agricultural Service, U.S.D.A.* T.398

United States Meat Exports by Type of Product In Metric Tons

	Beef and Veal				Pork								
Year	Fresh or frozen	Canned	Pickled or cured	Goat, lamb, mutton, fresh or frozen	Fresh or frozen	Hams & shoulders, cured or cooked	Bacon	Other pork, pickled, salted or otherwise cured	Other pork, canned	Sausage, bologna, frankfurters	Variety meats fresh or frozen[1]	Other meats[2]	Total
1977	40,982		517	1,755	116,282	2,941	1,216	2,919	1,810	3,426	173,060	8,198	353,106
1978	51,710	2,296	1,263	1,375	84,120	3,934	1,655	7,524	2,932	3,653	185,831	6,801	353,095
1979	53,823	1,625	1,955	562	83,058	3,380	912	8,912	1,123	3,003	163,930	4,664	331,946
1980	55,003	1,995	2,505	595	69,966	3,327	820	8,438	1,667	3,296	200,417	7,427	355,454
1981	68,608	2,826	3,235	972	86,652	2,363	1,079	9,130	1,662	3,819	209,981	7,949	397,870
1982	78,781	3,028	3,858	676	58,541	1,358	774	7,514	1,289	3,404	230,344	5,291	394,857
1983	86,962	1,584	4,500	632	62,141	1,794	601	5,581	695	3,139	218,311	3,795	389,735
1984	105,995	1,936	3,598	878	46,098	1,474	621	3,837	513	2,603	217,019	3,605	388,177
1985[3]	99,922	1,134	2,603	460	34,394	1,175	450	4,066	638	2,908	247,582	4,383	399,715

[1] Edible animal organs. [2] Includes sausage ingredients, cured (excluding canned); meat and meat products canned (n.e.s.); and baby food, canned. [3] Preliminary. *Source: Foreign Agricultural Service. Compiled from reports of the U.S. Department of Commerce* T.399

MEATS

U.S. Imports of Meats and Meat Preparations In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept	Oct	Nov.	Dec	Total
1980	196	152	166	134	173	154	208	170	133	207	167	191	2,052
1981	171	167	131	155	140	153	162	168	180	167	120	118	1,832
1982	127	106	160	169	167	215	158	234	246	194	124	114	2,015
1983	208	177	170	178	187	176	189	181	171	169	123	104	2,030
1984	180	167	171	198	161	128	209	198	189	226	175	159	2,160
1985[1]	193	179	207	213	214	221	230	232	226	198	196	201	2,511
1986[1]	225	196	197	179	180	213	260	232	232	223	237	168	2,544
1987[1]	211	218	236	240	222	268	277	244	249	244			

[1] Preliminary. *Source: Dept. of Commerce*

T.401

United States Meat Imports by Type of Product In Metric Tons

	Beef and Veal				Pork							
Year	Fresh or frozen[1]	Canned, including sausage	Other prepared or preserved[2]	Lamb, Mutton, & goat, except canned	Fresh and frozen	Canned[3]	Other prepared or preserved[2]	Sausage, all types[4]	Mixed sausage	Other meats n.s.p.f.[5]	Variety meats, fresh or frozen	Total
1980	642,268	42,729	17,799	15,482	93,143	98,529	1,990	2,929	2,230	5,957	4,562	927,618
1981	544,610	34,932	23,303	14,384	98,226	94,102	1,496	1,935	2,103	7,896	3,560	826,547
1982	607,184	37,747	17,402	8,649	125,282	96,831	1,547	2,372	2,242	7,373	2,823	909,452
1983	565,997	59,073	16,766	8,752	121,707	125,593	2,300	2,176	1,911	8,396	3,935	916,604
1984	516,960	57,863	19,864	8,693	207,703	142,423	3,372	2,243	2,121	7,129	5,707	974,078
1985[6]	594,476	64,277	18,314	15,565	254,538	160,802	6,312	2,192	2,672	9,163	5,622	1,133,933

[1] Includes prepared items. [2] Includes pickled and cured. [3] Includes canned hams, shoulders, and bacon. [4] Includes fresh and cured sausages. [5] Mostly mixed luncheon meats. [6] Preliminary. *Source: Foreign Agricultural Service. Compiled from reports of the U.S. Department of Commerce.*

T.402

U.S. Exports of Meat and Meat Preparations In Millions of Pounds

Year	Jan	Feb	Mar	Apr.	May	June	July	Aug	Sept	Oct	Nov.	Dec.	Total
1980	101	108	144	132	139	164	145	129	136	165	144	154	1,663
1981	143	141	169	148	189	180	128	144	123	174	154	153	1,847
1982	129	147	124	131	167	147	111	108	112	133	143	115	1,566
1983	114	104	136	133	115	118	121	99	130	127	134	119	1,449
1984	112	104	134	106	114	103	128	119	123	139	121	119	1,422
1985[1]	119	110	118	112	116	116	130	139	118	139	122	123	1,461
1986[1]	124	123	123	132	139	121	125	147	159	188	170	171	1,722
1987[1]	151	133	151	157	176	167	177	178	180	176			

[1] Preliminary. *Source: Dept. of Commerce*

T.403

Average Wholesale Prices of Meats In Cents Per Pound

	Composite Retail Price										
Year	of Beef (Choice)	of Pork[4]	of Veal	Cow Beef Canner & Cutter Midwest	Steer Beef Carcass, Choice, Centr. U.S.	Fresh Beef, Steer Carcasses Choice, E. Coast	Lamb Carcasses Choice & Prime (55-65 Lb.) East Coast	Pork, Fresh Loins, (8-14 lbs.) N.Y.	Hams[2] Midwest Skinned, Smoked 14-17 Lb.	Pork[1] Bellies 12-14 lbs. Midwest	Live Broilers Georgia
1980	237.6	139.4	309.5		104.44	104.4	134.98	101.14	88.99	67.01	27.0
1981	238.7	152.4	314.5		99.84	99.8	127.67	113.70	95.55	68.38	26.5
1982	242.5	175.4	N.A.		101.31	101.3	122.15	127.66	111.98	78.19	25.0
1983[3]	238.1	169.8		78.48	97.83	97.8	125.86	115.90	75.60	60.58	27.0
1984[3]	239.6	162.0		74.70	98.01	100.1	131.89	115.73	78.22	60.08	32.0
1985[3]	232.6	162.0		74.13	90.76	91.3	145.93	113.60	67.50	59.50	28.0
1986[3]	230.7	183.4		71.31	88.98	89.0	139.89	128.50	80.01	65.82	32.5

[1] Prior to 1983 prices are for cured pork cuts, picnics at N.Y. (4-8 lb). [2] Prior to 1978 prices are composite averages. [3] Preliminary. [4] Sold as retail cuts (ham, bacon, loin, etc.).

Sources: Bureau of Labor Statistics; Department of Agriculture

T.404

Average Wholesale Price of Steer Beef Carcass, Choice[1], at Midwest Markets In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1978	68.74	71.08	74.88	81.43	88.48	85.95	84.81	79.94	81.96	82.14	80.98	84.75	80.43
1979	93.57	97.47	104.59	108.61	108.64	103.56	99.85	94.13	101.91	98.32	103.22	105.53	101.62
1980	102.26	103.70	103.15	99.41	102.00	105.18	110.11	111.96	107.97	105.49	101.44	100.57	104.40
1981	99.80	96.10	94.32	99.68	103.32	106.52	107.20	103.90	102.96	96.02	94.56	93.70	99.80
1982	97.40	101.20	103.80	109.50	115.10	111.20	102.60	100.80	95.50	93.00	92.90	92.62	101.30
1983	93.90	96.55	100.62	107.76	105.00	102.47	97.72	95.01	92.10	91.24	91.57	99.82	97.83
1984	105.74	102.86	105.14	103.50	99.62	98.54	101.26	97.61	94.37	92.38	99.08	101.22	100.11
1985	99.50	97.42	92.00	89.20	89.52	88.48	82.22	80.02	81.14	91.11	99.68	98.84	90.76
1986	92.26	86.82	85.04	83.34	86.42	83.58	89.25	90.98	90.50	91.80	95.70	92.04	88.98
1987	89.70	91.69	92.86	100.56	107.80	105.71	99.29	95.45	96.87	96.80	95.30		

[1] 500–600 pounds. *Source: Economic Research Service, U.S.D.A.* T.405

Production[2] (Commercial Slaughter) of All Meats[1] in the U.S. In Millions of Pounds—Carcass Weight

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	3,215	3,045	3,342	3,079	3,269	3,081	2,883	3,274	3,139	3,355	3,345	3,094	38,119
1979	3,280	2,756	3,090	2,879	3,130	2,990	2,958	3,329	2,876	3,556	3,306	3,074	37,225
1980	3,398	3,050	3,099	3,315	3,311	3,089	3,070	3,016	3,221	3,577	3,097	3,349	38,590
1981	3,417	3,014	3,389	3,299	3,071	3,118	3,041	3,044	3,247	3,433	3,185	3,417	38,675
1982	3,152	2,894	3,296		9,097			9,165			9,659		37,266
1983	3,151	2,787	3,269	3,051	3,163	3,299	3,002	3,440	3,435	3,523	3,472	3,383	38,974
1984	3,219	3,092	3,349	3,079	3,411	3,205	3,045	3,362	3,111	3,672	3,324	3,119	38,987
1985[3]	3,420	2,938	3,161	3,294	3,486	3,085	3,277	3,402	3,252	3,544	3,123	3,145	39,131
1986[3]	3,482	2,937	3,133	3,477	3,388	3,156	3,281	3,180	3,259	3,506	2,986	3,261	39,050
1987	3,410	2,817	3,198	3,160	2,975	3,102	3,157	3,133	3,333	3,526			

[1] Except for pork production & lard. [2] Represents the total dressed carcass weight of livestock slaughtered under Federal inspection, exclusive of meats from condemned animals. [3] Preliminary. *Source: Agricultural Marketing Service, U.S.D.A.* T.406

Cold Storage Holdings of All[1] Meats in the United States, at End of Month In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1978	559.1	571.6	658.4	753.0	759.8	720.6	644.9	581.0	598.1	639.0	715.4	723.6
1979	728.4	710.9	762.5	783.4	797.0	755.0	685.6	580.7	549.1	604.5	656.9	706.2
1980	735.3	712.6	695.4	715.5	706.5	641.9	578.5	514.3	510.0	584.2	678.6	749.6
1981	790.3	782.9	775.9	817.2	795.2	716.6	628.6	538.9	508.6	546.8	552.2	578.2
1982	553.4	524.2	536.0	—	—	503.9	—	—	473.9	—	—	553.8
1983	573.4	571.0	576.3	607.6	619.2	595.5	569.8	543.3	535.3	576.7	667.6	679.3
1984	692.9	707.7	738.1	777.5	818.9	776.3	713.8	627.6	646.2	674.9	681.4	696.0
1985[2]	735.0	702.9	721.2	772.7	784.9	758.6	738.2	677.1	654.2	645.2	633.0	607.4
1986[2]	616.8	615.3	622.5	658.2	667.2	638.8	618.6	572.0	541.1	572.4	564.3	566.2
1987[2]	597.6	599.0	594.9	590.8	558.9	497.6	515.6	495.4	523.4	575.4	609.5	

[1] Includes beef and veal, mutton and lamb, pork and products, rendered pork fat, and miscellaneous meats. Excludes lard. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.407

Cold Storage Holdings of Frozen Beef[1] in the United States In Millions of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1978	315.6	313.1	318.4	357.2	376.0	388.2	372.3	336.5	315.7	332.2	348.4	388.2
1979	405.4	423.7	405.0	427.4	410.1	411.9	395.7	369.6	324.2	296.7	308.2	321.9
1980	350.3	367.3	357.6	335.1	296.6	277.9	256.5	242.5	228.6	219.7	243.8	279.0
1981	328.2	361.3	347.8	341.5	339.4	328.6	297.5	272.6	245.2	234.9	244.6	232.2
1982	256.7	249.1	223.3	211.9	—	—	189.7	—	—	247.7	—	—
1983	294.4	303.1	307.0	299.1	277.3	265.2	254.0	252.3	267.4	268.2	278.0	316.0
1984	325.0	338.0	332.5	325.7	324.6	312.8	303.2	301.7	290.0	319.6	326.0	340.1
1985[2]	357.7	375.1	347.0	334.0	328.0	300.9	292.5	319.7	310.6	308.4	294.9	302.3
1986[2]	317.4	318.4	302.3	297.1	301.2	318.5	321.6	337.0	319.4	291.6	292.3	297.5
1987[2]	310.6	320.6	306.0	311.1	312.3	280.1	252.7	278.7	268.7	286.7	307.5	303.1

[1] Includes frozen beef, cured beef, and beef in process of cure. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.408

Mercury

World mine production of mercury in 1987 fell to an estimated 174,000 flasks, the lowest level in years. Production was estimated at almost 176,000 flasks in 1986, and averaged 200,000 annually in the early 1980s. Two countries account for more than half of the world's output. The USSR is the largest producer, but the biggest mine is in Spain.

Annual Soviet production is estimated at 65,000 flasks, while Spain's output runs about 45,000. The only U.S. mercury mine, located in Nevada, suspended operations in early 1987. For most of 1987, domestic mercury output was almost entirely a by-product of gold production at six mines. U.S. mercury production has been declining steadily in the 1980s, and this trend is likely to continue, despite increased gold production. Imports fill much of U.S. demand, with Spain the largest supplier.

The U.S. government maintains a mercury stockpile. In late 1987, 165,526 flasks were in the National Defense Stockpile, compared with 169,226 flasks in mid-1986. Stocks in private hands in late 1987 were uncertain because of the shutdown of the Nevada mine. Several firms in the eastern U.S. recycle mercury from used instruments, batteries, and industrial scrap. The Department of Energy (DOE) also has a mercury stockpile (independent from the strategic stockpile), inherited from the Atomic Energy Commission. DOE is authorized to sell up to 1,500 flasks of recycled metal a month; there was only one sale during the first eleven months of 1987, leaving a November 30 inventory of 28,739 flasks.

Demand has been adversely affected by the pollution effects of the metal (notably in paints), and it is being phased out in some products. However, more efficient industrial environmental controls have eased the mercury pollution threat, and world demand could be on the verge of expanding.

But that hasn't been the trend in the U.S., where mercury use in 1987 was estimated at 43,000 flasks, versus 46,000 in 1986. Reduced usage in batteries apparently contributed to the decline and offset an increase in caustic soda and chlorine production. Improved technology allows the utilization of less mercury per battery cell. In Japan, the use of the mercury-cell process for electrolytic production of chlorine and caustic soda was phased out in 1986, making Japan the first industrialized nation to eliminate this use of mercury.

World-wide, increased numbers of cars and trucks have boosted derived demand for batteries; this, together with enlarged chemical demand, should raise world demand for prime virgin mercury to 7,200 tonnes (there are about 29 flasks per tonne) by 1990.

Burdensome supplies have pressured mercury prices in recent years. However, price lows may have been set in September 1986, when the New York dealer price averaged $182/flask. An irregular, but steady recovery then began, lifting the average monthly New York price above $342 in September 1987. Under the 1986 Superfund law, each mercury flask sold in the U.S. by a producer or importer is subject to a 17-cent tax, beginning in 1987 and continuing through 1991.

World Mine Production of Mercury In Flasks of 34.5 Kilograms (76 Pounds)

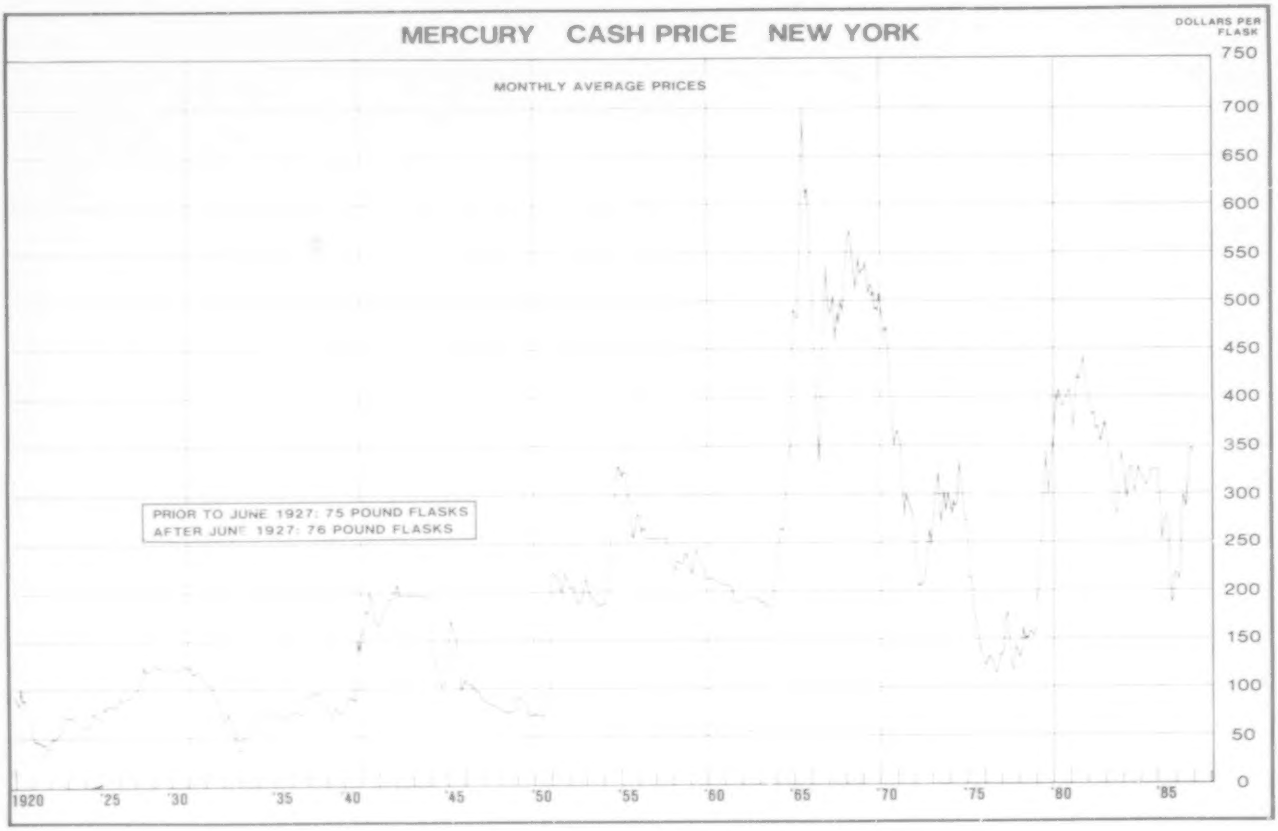
Year	Algeria	China[1]	Czechoslovakia	Dom. Rep.	Finland	Italy	Mexico	Spain	Turkey	United States	USSR[1]	W. Germany	Yugoslavia	World Total
1981	25,000	20,000	4,438	77	1,949	7,427	6,962	46,008	5,915	27,904	63,000	2,205	—	210,885
1982	11,000	20,000	4,380	49	2,068	4,612	8,558	48,808	7,129	25,760	64,000	1,537	—	197,901
1983	10,000	20,000	4,177	60	1,857	—	6,411	41,075	4,680	25,070	64,000	2,005	1,500	180,835
1984	23,000	20,000	4,409	80	2,292	—	11,140	44,090	5,272	19,048	64,000	—	2,000	195,331
1985[1]	23,000	20,000	4,400	14	2,300	—	11,430	45,042	6,000	16,530	65,000	—	2,000	195,823
1986[2]	23,000	20,000	4,400	120	2,300	—	10,000	42,000	6,000	N.A.	66,000	—	2,000	175,820

[1] Estimate. [2] Preliminary. *Source: Bureau of Mines* T 409

Salient Statistics of Mercury in the United States In Flasks (76 Pounds Each)

Year	Net Import Reliance as a % of Apparent Consumption	Ore Treated (1,000 Short Tons)	Mercury Produced[2]		Production		Stocks, Dec. 31			Exports	U.S. Imports (For Consumption) From:						
			Flasks	Pounds per Ton of Ore	Mine	Secondary	Producers	Consumers & Dealers	Total		Total	Algeria	Canada	Turkey	Mexico	Spain	Japan
1981	44	262.4	27,888	8.1	27,904	11,244	11,783	15,556	27,339	—	12,408	—	112	—	104	4,989	2,372
1982	32	301.0	25,704	6.5	25,760	4,473	13,598	15,229	28,827	—	8,916	—	5	—	182	1,404	4,345
1983	30	335.4	25,033	5.7	25,070	13,751	18,323	12,695	31,018	—	12,786	1,795	4	—	1,590	3,408	511
1984	58	216.2	19,014	6.7	19,048	5,673	19,964	7,291	27,255	—	25,327	8,201	14	2,002	21	11,749	500
1985	57	182.4	16,337	6.8	16,530	5,358	19,398	8,587	27,985	—	18,890	1,938	5	3,012	214	7,955	2,502
1986[1]	N.A.	N.A.	N.A.	N.A	N.A.	6,362	N.A	7,189	N.A.	—	20,187	1,251	10	4,328	655	5,824	2,202
1987[3]						7,500		8,000			20,700						

[1] Preliminary. [2] Excludes mercury produced from placer operation & from clean-up activity at furnaces & other plants. [3] Estimate.
Source: Bureau of Mines T 412



Average Price of Mercury in New York In Dollars Per Flask of 76 Pounds

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Average
1980	383.75	399.90	420.00	406.81	398.33	389.57	397.11	397.26	402.62	407.83	404.56	376.19	396.72
1981	366.00	386.79	411.18	423.41	418.50	423.07	433.75	441.14	436.55	425.91	421.84	413.07	416.77
1982	405.00	380.92	390.76	384.32	365.88	367.50	364.29	343.30	352.55	373.21	373.75	374.29	372.98
1983	366.67	346.18	338.91	327.62	316.31	300.23	282.25	279.02	299.05	339.29	344.50	331.69	322.64
1984	318.67	295.68	300.45	324.26	328.27	325.48	314.64	302.09	317.18	329.07	327.13	320.08	316.92
1985	317.30	315.00	314.38	309.34	297.27	309.05	316.74	324.61	325.00	325.00	325.00	325.00	316.98
1986	285.68	261.97	252.44	272.05	277.50	276.07	260.00	218.10	181.91	193.80	215.19	219.43	242.85
1987	216.70	211.03	223.73	260.00	297.63	297.73	286.82	306.55	337.86	345.91	348.95	342.27	289.60

Source: *American Metal Market* T.410

Mercury Consumed in the United States In Flasks

Year	Batteries	Chlorine & Caustic Soda	Catalysts	Dental Equip.	Electrical Lighting	General Lab. Use	Measuring Control Instrum.	Other Instruments - Relat.	Paints	Wiring Devices & Switches	Other	Grand Total
1980	27,829	9,470	765	1,779	1,036	363	3,049	190	8,621	3,062	790	58,983
1981	29,441	7,323	815	1,613	1,043	328	5,671	253	7,049	2,641	242	59,244
1982	24,880	6,243	499	1,019	826	281	3,064	194	6,794	2,004	984	48,943
1983	23,350	8,054	484	1,597	1,273	280	2,465	N.A.	6,047	2,316	1,356	49,138
1984	29,700	7,347	359	1,432	1,487	269	2,856	N.A.	4,651	2,730	1,404	54,669
1985	27,622	6,804	488	1,444	1,147	413	2,300	N.A.	4,892	2,762	267	49,846
1986[1]	21,764	7,548	536	1,507	1,197	568	1,814	N.A.	5,006	2,981	309	45,946
1987[2]	16,000	9,000		1,600	1,300	550	1,800		5,000	3,800	400	42,000

[1] Preliminary. [2] Estimate. Source: *Bureau of Mines* T.413

Milk

The major factor impacting the dairy market is the Dairy Termination Program (DTP). The DTP, authorized under the Farm Bill, paid farmers to give up dairying for at least five years. They had to sell all their dairy cattle for slaughter or export and to remain out of dairying. The DTP slaughter has ended, and milk production is showing a steady recovery. Still, the impact of the program will be seen over a long period. A couple of its immediate effects were on cow numbers and output per cow. The direct result was a reduction in the size of the dairy herd. It appeared that cow numbers were stabilizing in 1987. With the cut in herd came the elimination of many marginal producers, and this should allow an increase in milk output per cow. So while the DTP slowed milk production, productivity increases offset some of the decline.

For the first seven months of 1987, average milk output was nearly 3 percent below the year-earlier level. By August and September, production was back above a year before. Compared to 1985, milk production in 1987 was about the same. Output by region varied considerably. In the Pacific and Lake regions, milk production increased, while it fell in the Northeast, Corn Belt and Appalachia.

Yields or output per cow were erratic. Over the first three quarters of 1987, yields rose 2.7 percent, partly due to elimination of marginal herds. More significant was the increase in the milk-feed ratio. In the first three quarters of 1987, the ratio was up 6 percent over the same 1986 period. This caused dairymen to boost the amount of concentrate feeding per animal. The USDA calculated that each cow was receiving about a half pound more concentrate daily.

During the July-September period, cow numbers were almost 3 percent below a year earlier. In September, there were 10.4 million milk cows, indicating that non-DTP dairymen had done some expanding. In 21 selected states, milk cow numbers during the May-September period were fairly stable, after declining each month since early 1986. In these 21 states, cow numbers were 4 percent less than a year earlier, with the herd at 8.8 million.

Milk production in 1987's last quarter was expected to be higher than a year earlier. Gains in yields outpaced declines in cow numbers. For 1987 as a whole, production was expected to fall 1-3 billion pounds from 1986's output of 144.1 billion. This was the third decline since 1975. Factors which were expected to affect 1988 milk production included higher feed prices. And higher cow prices could mean more slaughter of marginal cows.

July-August milk marketings were above a year earlier, with the milk equivalent of the major manufactured products up 1 percent. Butter and American cheese production used less milk than the previous year, but strong sales of other products absorbed more milk. Commercial disappearance of all milk and dairy products during June-August was more than 2 percent above a year earlier. The gain for the first eight months of 1987 was about 3 percent, due to lower retail prices, economic growth, and promotion. The USDA reported that June-August sales of fluid milk in Federal orders and California were 1 percent higher than a year earlier. Sales of whole milk products were 3 percent lower, while low fat and skim milk sales were about 6 percent higher. Consumers continued to shift from whole milk to low-fat milk.

On October 1, the support price for manufacturing grade milk was reduced to $11.10/cwt., down from $11.35 in effect since the start of 1987. Adjusted to 3.5 percent fat, the new support price was $10.82/cwt.

World Fluid Milk Production (Cow's Milk) In Millions of Metric Tons

Year	Australia	Brazil	Canada	Czechoslovakia	Denmark	Finland	West Germany	USSR	India	Netherlands	New Zealand	France	Poland	Switzerland	United Kingdom	United States
1983	5.7	10.7	7.9	6.5	5.4	3.2	26.9	96.5	16.0	13.2	6.9	27.9	16.1	3.7	17.3	63.4
1984	6.1	10.8	8.1	6.8	5.2	3.2	26.2	97.9	17.1	12.8	7.6	27.6	16.8	3.9	16.6	61.4
1985	6.3	10.4	7.9	6.9	5.1	3.1	25.7	98.6	19.0	12.6	7.9	26.8	16.6	3.8	16.3	64.9
1986[1]	6.2	9.8	7.9	6.9	5.1	3.1	26.4	102.2	19.5	12.7	8.2	27.4	15.7	3.8	16.2	65.4
1987[2]	6.3	11.0	8.0	6.9	4.9	3.0	24.8	103.2	17.7	11.7	7.3	26.3	15.7	3.9	15.3	64.5

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T-414

U.S. Milk-Feed Price Ratio[1] In Pounds

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Average
1983	1.59	1.56	1.55	1.49	1.45	1.43	1.45	1.41	1.36	1.39	1.36	1.34	1.45
1984	1.33	1.33	1.34	1.32	1.32	1.32	1.35	1.40	1.48	1.56	1.62	1.59	1.41
1985	1.57	1.57	1.55	1.51	1.47	1.45	1.44	1.47	1.51	1.56	1.55	1.53	1.52
1986[2]	1.48	1.50	1.48	1.48	1.46	1.45	1.51	1.55	1.61	1.75	1.77	1.77	1.57
1987[2]	1.74	1.69	1.63	1.62	1.58	1.62	1.56	1.60	1.65	1.64			

[1] Pounds of 16% protein mixed dairyfeed equal in value to one pound of milk. [2] Preliminary. *Source: Economics & Statistics Service, U.S.D.A.* T-420

Milk Cows & Cattle and Milk Production in the U.S.

Year	Number of Milk Cows on Farms[2] (Thousands)	Production Per Milk Cow[3]		Total Milk Production[3]			Milk Sold to Plants & Dealers		Milk Sold Directly to Consumers		Milk Utilized Bill. Lbs.	Farm Value of All Milk Mill. $	Per Capita Consumption — in pounds	
		Milk — Pounds	Milk Fat — Pounds	Quantity Billion Pounds	% of Fat in All Milk Produced	Milk Fat Mil. Lbs.	Quantity Billion Pounds	$ Per 100 Lbs.	Quantity Million Quarts	c Per Quart			Milk-Fat Basis	Fluid Milk[4]
1981	10,898	12,183	444	132.8	3.64	4,836	129.0	13.77	684.7	48.3	130.5	18,415	542	222
1982	11,011	12,306	450	135.5	3.65	4,950	131.9	13.61	597.8	48.1	133.1	18,559	560	216
1983	11,098	12,585	460	139.7	3.66	5,105	136.1	13.58	563.4	48.4	137.3	19,081	577	215
1984	10,833	12,506	458	135.5	3.66	4,964	131.4	13.46	530.8	49.2	132.5	18,341	582	217
1985[1]	11,016	12,994	478	143.1	3.67	5,268	139.9	12.75	588.0	48.7	141.2	18,453		220
1986[1]	10,839	13,293		144.1										
1987[5]	10,800	13,600		144.4										

[1] Preliminary. [2] Average number on farms during year excluding heifers not yet fresh. [3] Excludes milk sucked by calves & milk produced by cows not on farms. [4] And cream (milk fat basis). [5] Estimate. *Source: Crop Reporting Board, U.S.D.A.* T 415

Utilization of Milk in the United States In Millions of Pounds (Milk Equivalent)

Year	Butter from Whey Cream	Creamery Butter[1]	Cheese[6]	Cottage Cheese (Creamed)	Condensed Whole Milk	Evaporated Milk[5]	Dry Whole Milk Products	Ice Cream & Other	Frozen Dairy Products[2]	Fluid Consumption — Nonfarm	Fluid Consumption — Farm[3]	Fed to Calves	Other Mfg Products[4]
1981	3,192	24,614	36,546	977	639	1,669	686	14,080	11,964	50,215	886	1,418	821
1982	3,365	24,987	38,903	950	704	1,490	758	14,268	12,135	49,346	839	1,521	656
1983	3,554	25,788	41,006	941	648	1,525	823	14,720	12,598	49,705	842	1,527	663
1984[3]	3,406	21,471	38,718	932	724	1,419	880	14,783	12,660	50,605	804	2,134	488
1985[7]	3,694	24,385	41,700	917	817	1,509	877	15,021	12,855	52,014	709	1,757	477

[1] Excludes whey butter. [2] From milk and cream only. [3] Preliminary. [4] Includes dry cream, malted milk, dry part skim milk, dry ice cream mix. [5] Data include evaporated & sweetened condensed milk. [6] American & other. [7] Estimate. *Source: Crop Reporting Board, U.S.D.A.* T 416

Milk Production on Farms in the United States In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	10,803	10,149	11,519	11,531	12,078	11,552	11,361	11,106	10,625	10,763	10,393	10,890	132,770
1982	11,106	10,361	11,700	11,607	12,191	11,781	11,618	11,370	10,939	11,053	10,644	11,135	135,505
1983	11,443	10,707	12,029	11,956	12,616	12,261	12,046	11,672	11,218	11,400	10,979	11,345	139,672
1984	11,373	10,856	11,713	11,660	12,219	11,710	11,487	11,205	10,784	10,913	10,524	11,006	135,450
1985	11,276	10,485	11,874	12,028	12,869	12,506	12,553	12,342	11,790	11,986	11,520	11,918	143,147
1986[1]	12,197	11,322	12,653	12,598	13,211	12,541	12,319	11,930	11,361	11,460	11,057	11,430	144,080
1987[1]	11,683	10,933	12,261	12,218	12,844	12,282	12,226	12,015	11,590	11,763			

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T 417

Average Price Received by U.S. Farmers for All Milk[2] (Sold to Plants) In Dollars Per Cwt.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average[1]
1982	14.00	13.80	13.70	13.50	13.20	13.20	13.20	13.30	13.60	13.80	13.90	13.90	13.59
1983	13.90	13.80	13.60	13.60	13.30	13.20	13.20	13.30	13.50	13.80	13.90	13.70	13.58
1984	13.60	13.40	13.30	13.10	13.00	12.90	13.00	13.20	13.60	14.00	14.30	14.00	13.46
1985	13.90	13.70	13.30	12.90	12.50	12.20	12.10	12.10	12.30	12.60	12.60	12.60	12.75
1986	12.50	12.40	12.20	12.10	12.00	11.90	12.00	12.30	12.80	13.20	13.40	13.40	12.51
1987[3]	13.30	12.90	12.50	12.30	12.00	11.90	12.00	12.30	12.70	12.90	13.00		

[1] Weighted average. [2] Adjusted for seasonal variation. [3] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T 418

Farm Price of Milk[1] Eligible for Fluid Market In Dollars Per Hundred Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	14.20	14.20	14.00	13.80	13.70	13.60	13.60	13.70	13.90	14.20	14.20	14.20	13.95
1982	14.10	14.00	13.80	13.60	13.40	13.30	13.40	13.40	13.70	13.90	14.10	14.10	13.80
1983	14.00	14.00	13.80	13.70	13.50	13.30	13.30	13.50	13.70	13.90	14.10	13.90	13.75
1984	13.80	13.50	13.40	13.20	13.10	13.00	13.10	13.30	13.80	14.10	14.40	14.20	13.61
1985	14.20	13.90	13.50	13.00	12.60	12.30	12.20	12.30	12.30	12.70	12.70	12.70	12.90
1986	12.70	12.60	12.40	12.10	12.10	12.00	12.10	12.40	12.90	13.30	13.50	13.50	12.60
1987	13.40	12.90	12.40	12.40	12.10	12.00	12.10	12.40	12.80	13.00			

[1] MILK, Standard Grade, 3.5% milkfat. Weighted average price per 100 pounds (f.o.b. city). *Source: Crop Reporting Board, U.S.D.A.* T 419

Molasses

World molasses production in 1986/87 was estimated at 34.7 million tonnes, up 3 percent from a year earlier. There has been a steady rise in output since the 1983/84 season. Output by Brazil, the world's major producer, was placed at 4.8 million tonnes, unchanged for the third year in a row. Brazilian exports were put at 500,000 tonnes, unchanged from 1985/86.

The USSR, the second largest producer, had an outturn of about 3.1 million tonnes. It was expected to continue to be self-sufficient. Soviet consumption was distributed as follows: industrial alcohol, 1.3 million tonnes; livestock feed, 1 million; and other, 0.8 million.

India's production was expected to increase in 1986/87 to 3.0 million tonnes, from 2.6 million the previous year. Its exports were forecast to rise to 100,000 tonnes because of increased supplies.

China's estimated 1986/87 production of 1.7 million tonnes was up from 1.54 million tonnes a year earlier.

Production increases were also expected in Argentina (1 million tonnes in 1986/87, versus 850,000 in 1985/86), Italy (440,000, versus 330,000), Mexico (1.46 million, versus 1.44 million), and Australia (693,000, versus 658,000).

U.S. production in 1986/87 was expected to be virtually unchanged from 1985/86 at 2.015 million tonnes. The average price of blackstrap molasses (cane) at New Orleans in the first seven months of 1987 was lower than in the comparable 1986 period. The 1987 price ranged from a high of $62.00/ton in March to a low of $50.60 in July. In 1986, the price for the first seven months ranged from $65.00-$79.10.

The total U.S. supply of molasses in 1986/87 was estimated at 578.4 million gallons. Total mainland production was placed at 349.8 million gallons. Shipments from Puerto Rico and Hawaii were 51.4 million gallons. Imports were 249.7 million gallons, while exports were 72.54 million.

World Production of Molasses (Industrial) In Thousands of Metric Tons

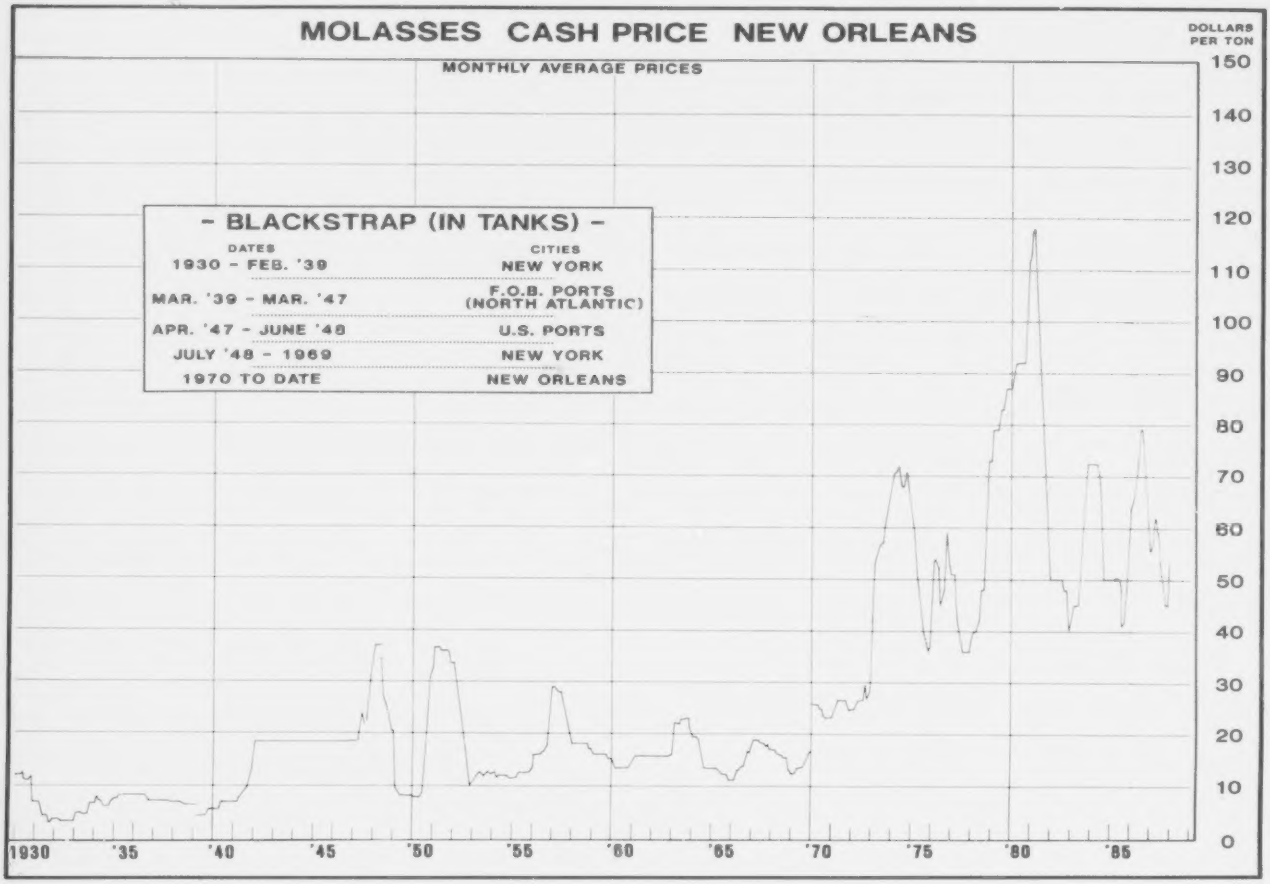
Crop Year	Argentina	Brazil	Cuba[2]	France	W. Germany	India	Italy	Mexico	Philippines	Poland	Australia	Thailand	China	United States	USSR	World Total
1978–9	818	5,000	1,296	952	685	2,564	365	1,410	818	657	577			2,148	3,306	32,688
1979–0	789	4,800	1,185	958	653	1,582	390	1.260	818	653	598			2,054	3,062	30,052
1980–1	654	5,400	1,111	1,013	657	2,129	410	1,145	860	430	713			2,012	2,669	30,941
1981–2	565	4,520	1,200	1,404	836	3,400	500	1,373	941	665	719	1,736		2,051	2,385	34,384
1982–3	541	5,110	1,050	1,364	807	3,700	370	1,270	957	758	726	1,316		1,900	2,530	35,139
1983–4	560	5,130	1,150	1,072	605	2,500	380	1,390	928	816	718	1,230	1,275	2,015	2,723	32,981
1984–5	702	4,800	1,150	1,165	640	2,500	380	1,400	744	708	736	1,356	1,130	2,012	3,200	33,755
1985–6[1]	854	4,800	1,150	1,110	650	2,600	330	1,440	590	699	658	1,275	1,540	2,014	2,900	33,594
1986–7[3]	1,000	4,800	1,150	970	650	3,000	440	1,460	600	700	693	1,300	1.710	2,015	3,100	34,749

[1] Preliminary. [2] Includes hi-test molasses. [3] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.421

U.S. Annual Average Prices of Molasses, by Types (F.O.B. Tank Car or Truck) In Dollars Per Ton[1]

	Blackstrap						Beet Molasses			Citrus Molasses
Year	New Orleans	South Florida	Baltimore	Minneapolis	Omaha	Calif. Ports	Colorado	Wyo. & Montana	Ore., Utah & Idaho	Florida
1977	40.55	42.45	47.00	54.35	58.75	42.90	41.45	45.20	55.10	50.65
1978	51.50	52.40	59.25	67.30	72.55	54.00	60.40	58.35	60.95	61.05
1979	82.95	85.50	91.20	107.90	107.75	84.05	85.30	82.65	N.A.	79.40
1980	96.50	96.80	106.75	124.45	128.85	101.70	95.60	96.55	N.A.	103.65
1981	84.90	90.00	99.30	111.20	119.40	89.20	85.30	95.20	N.A.	103.10
1982	48.00	56.55	64.15	70.85	81.90	60.50	69.40	63.70	44.50	86.90
1983	56.50	63.10	73.05	76.90	91.90	70.40	79.45	65.95	60.55	89.20
1984	61.50	71.00	77.65	81.00	94.45	71.95	82.50	79.15	70.65	97.50
1985	50.28	59.79	64.66	72.83	85.00	61.89	N.A.	67.50	57.33	N.A.
1986[2]	69.61	78.10	83.05	92.03	N.A.	73.26	80.33	86.75	68.44	N.A.

[1] Per ton prices are based on 171 gallons for blackstrap, beet and corn molasses and on 175 gallons for citrus molasses. Prices represent sales F.O.B. terminal to the general feed trade and do not include sales made under various pricing arrangements above or below prices generally available to the ultimate user. Ton—2,000 lbs. Gallon—U.S. gallon. Prices are now rounded off to the nearest 5 cents. [2] Preliminary. *Source: Molasses Market News, Annual Summary, AMS, U.S.D.A. Denver Colorado, and Molasses Market News, Weekly, various issues* T.423



Salient Statistics of Molasses in the United States In Thousands of Gallons

Year	Mainland cane	Domestic beet	Refiners blackstrap	Total[2]	In shipments from Hawaii	Imports	Exports	Total U.S. supply
				1,000 gallons				
1980	109,678	113,306	34,655	303,687	48,402	193,085	50,849	494,325
1981	129,504	205,360	47,754	408,218	55,139	197,939	43,939	617,357
1982	126,956	170,781	38,189	350,337	49,109	206,291	47,247	558,490
1983	123,007	162,762	31,549	331,027	54,354	312,279	48,643	649,017
1984	118,993	170,426	34,598	330,284	50,029	260,724	26,371	614,666
1985	130,891	165,071	25,574	321,536	44,316	313,215	25,598	653,469
1986[1]	135,585	190,299	23,922	349,806	51,395	249,760	72,545	578,416

[1] Preliminary. [2] Starting 1984 totals are adjusted to reflect omission of citrus and hydrol production. NA = not available.
Source: Molasses Market News, AMS, USDA.

Wholesale Price of Blackstrap Molasses (Cane) at New Orleans In Dollars Per Ton

Year	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	50.00	50.00	50.00	50.00	50.00	50.00	50.00	48.00	48.00	44.00	40.00	41.00	47.60
1983	44.00	45.00	45.00	45.00	47.50	49.40	53.75	61.50	68.75	72.50	72.50	72.50	56.45
1984	72.50	72.50	72.50	72.50	70.70	68.75	59.00	50.00	50.00	50.00	50.00	50.10	61.55
1985	50.00	50.00	50.00	50.00	50.00	47.75	41.00	41.90	48.00	53.75	57.50	63.50	50.28
1986	65.00	65.60	68.50	71.00	73.75	79.00	79.13	76.60	72.30	68.10	60.25	55.50	69.56
1987	56.25	59.40	62.00	59.40	59.10	53.00	50.60	48.60	45.30	45.00	47.00		

Source: Economics Service, U.S.D.A. T.424

Molybdenum

In 1987, molybdenum producers were faced with oversupply and soft demand, forcing them to lower their posted prices, after 1986's firm prices. Producers may have benefited from a buying spree at the end of 1986, but suffered when oversupplied end-users cut back on their 1987 purchases.

In late 1986, the average price for dealer molybdenum oxide was $3.45/lb., reached after a series of run-ups that left consumers feeling that $3.60 was the next stopping point. However, by late 1987, due to the size of consumer inventories, the price was down to $3.20/lb. and was on its way to $3.10. European dealer prices were thirty cents/lb. below that.

For the first eight months of 1987 (Jan.-Aug.), U.S. production of molybdenum concentrate was 46.42 million pounds, for an implied annual 69.63 million, down 26 percent from 1986's full-year total. In 1986, U.S. mine capacity utilization was about 35 percent, and it wasn't expected to be much greater in 1987.

However, imports of all types of molybdenum picked up in 1987, and were showing healthy gains over full-year 1986 totals. For the first eight months of 1987, U.S. imports of molybdenum products were 15.01 million pounds, compared with full-year 1986 imports of 9.87 million. Apparently, prices were one reason for the large change in imports. European merchants were quick to respond to the slack demand for molybdenum and lowered prices steadily during 1987. In recent years, major U.S. suppliers of molybdenum have been Chile, Canada, Mexico, China, and Peru.

Consumption of molybdenum in 1987 appears to have declined as well. For the first eight months of 1987 (Jan.-Aug.), total consumption was estimated at 15.93 million pounds. But it's important to note that due to late reporting by survey respondents, the Bureau of Mines data was subject to change.

The largest users of molybdenum were the iron and steel industries, accounting for about 75 percent of total usage. Major end-user applications of molybdenum were: machinery, 35%; oil and gas industry, 20%; transportation, 15%; chemicals, 15%; electrical uses, 10%; and other, 5%.

Identified molybdenum resources are around 19 billion pounds in the U.S. and about 46 billion pounds in the world. Resources are considered to be more than adequate to supply foreseeable world demand. On a practical level, there are few substitutes for molybdenum in steel alloy making. Due to molybdenum's usefulness and availability, industry is looking for more ways to utilize it. One recent discovery involves the use of molybdenum treatment on lumber as an environmentally acceptable method of combating termites.

World Mine Production of Molybdenum In 1,000 Pounds (Contained Molybdenum)

Year	Bulgaria	Canada[3]	Chile	China	Japan	Mexico	Mongolia	Niger	Peru	Philippines	South Korea	United States	USSR	World Total
1979	330	24,634	29,895	4,400	154	105			2,637	311	417	143,967	22,500	229,350
1980	330	26,892	30,133	4,400	123	163	1,070	269	5,926	201	661	150,686	22,900	243,754
1981	330	28,329	33,863	4,400	163	994	1,460	249	5,485	207	1,023	139,900	23,600	240,003
1982	375	30,779	44,198	4,400	214	11,442	1,830	93	6,427	150	796	84,381	24,300	209,385
1983	420	22,474	33,651	4,400	214	12,932	2,120	88	5,825	86	313	33,593	24,500	140,616
1984	420	25,479	37,172	4,400	324	8,938	2,200	73	6,557	—	348	103,664	24,700	214,275
1985[1]	420	17,311	40,541	4,400	215	8,292	2,200	44	8,898	—	734	108,409	24,900	216,364
1986[2]	400	28,440	35,971	4,000	—	7,720	2,200	44	7,681	—	660	93,976	25,100	206,192

[1] Preliminary. [2] Estimate. [3] Shipments. *Source: Bureau of Mines* T.425

U.S. Salient Statistics of Molybdenum In 1,000 Pounds (Contained Molybdenum)

	Concentrate							Primary Products[3]							
		Shipments						Net Production				Shipments			
Year	Production	Total (Includes Exports)	Value Mill. $	For Exports	Consumption	Imports for Consumption	Stocks Dec. 31[2]	Grand Total	Molybdic Oxide[4]	Molybdenum Metal Powder	Sodium Molybdate	To Domestic Destinations	Oxide For Exports	Consumption	Producers' Stocks Dec. 31
1979	143,967	143,504	871.1	36,405	103,152	2,329	9,520	101,752	79,035	4,946	1,541	109,419	35,773	60,388	8,502
1980	150,686	149,311	1,344	35,026	108,206	1,825	18,101	106,284	84,554	4,904	1,142	95,391	35,557	53,265	27,007
1981	139,900	118,916	945.5	32,735	80,725	1,988	35,043	105,824	59,645	3,513	96	64,368	20,004	50,189	44,961
1982	84,381	76,135	504.1	21,870	49,444	3,115	38,510	65,381	35,354	3,304	121	47,884	23,375	27,665	49,402
1983	33,593	48,805	166.6	18,979	27,014	1,673	11,637	37,533	11,148	3,667	191	50,562	19,877	27,225	28,352
1984	103,664	102,405	326.8	41,687	54,843	28	12,450	79,689	40,186	4,302	N.A.	65,527	24,553	34,792	22,155
1985	108,409	111,936	347.8	38,646	N.A.	112	9,322	87,436	48,750	3,734	N.A.	73,861	36,268	33,451	21,014
1986[1]	93,976	95,006	240.5	18,267	53,061	1,120	8,715	41,490	6,147	4,256	N.A.	57,855	21,325	31,898	20,699
1987[5]	70,000							25,500				32,000			

[1] Preliminary. [2] At mines & at plants making molybdenum products. [3] Comprises ferromolybdenum, molybdic oxide, & molybdenum salts & metal. [4] Includes molybdic oxide briquets, molybdic acid, & molybdenum trioxide. [5] Estimate. *Source: Bureau of Mines* T.426

Nickel

The accumulated impact of low nickel prices over time forced the closure of the last U.S. nickel mine in 1987. The Oregon pit had been sidelined since mid-1986, and was finally abondoned in 1987. The closure was symptomatic of the nickel market itself, faced with a plague of reduced prices and overcapacity for most of the 1980s. The supply picture was so soft that superalloy producers were forced to roll back numerous price increases, and only in 1987 did they attempt to hold the line with selected price hikes.

The bottom of the market was reached at 1987's start, and afterwards a sharp rally in prices occurred. This helped breathe some life into the industry, and, as a result, there were increased efforts by international mining concerns to close production deals and joint ventures. Prices rose from an average of $1.599 per pound on the London Metal Exchange spot position in January 1987 to near $2.50 per pound in late 1987.

For the first five months of 1987, total U.S. consumption was 93.94 million pounds, with the largest uses coming from cathodes, pellets, briquets and nickel powder. In 1986's same five-month period, consumption totaled 87.77 million pounds.

In the U.S., some 340 companies reported nickel usage. Approximately 39 percent of the primary nickel consumed went into nonferrous alloys, and 22 percent into electroplating. Ultimate end uses were: transportation, 25 percent; chemical industries, 15 percent; electrical equipment, 9 percent; construction, 9 percent; fabricated metal products, 9 percent; petroleum, 8 percent; household appliances, 7 percent; machinery, 7 percent; and other, 11 percent.

U.S. nickel imports for the same five-month period totaled 120.65 million pounds, up about three percent over 1986's same-period imports of 117.40 pounds. Canada, supplying the U.S. with 63.78 million pounds for the period, was responsible for just over half of the total, while Norway and the Dominican Republic accounted for 19.35 million pounds and 9.13 million, respectively. There were also some 2.71 million pounds imported from South Africa under the government's strategic minerals import guidelines.

The USSR is the leading nickel producer, accounting for about one-fourth of world output. Because of a ban put into effect in 1983, Soviet nickel was not allowed into the U.S., but the U.S. has announced that it intends to lift this restriction.

Identified world resources of 1-percent or better nickel are estimated at 143 million short tons, with substantially more in low-grade deposits. Also, extensive deposits of nickel in manganese nodules cover large areas of ocean floor, particularly in the Pacific.

While nickel can be substituted with other metals, in many cases that change would entail extra costs, and cause poorer product performance or efficiency.

Futures Market

Nickel futures are traded on the London Metal Exchange (LME).

World Mine Production of Nickel In Thousands of Short Tons of Contained Nickel

Year	Australia[3]	Botswana	Brazil	Canada	Cuba	Domin. Repub.	Finland[3]	Greece	Indonesia	New Caledonia	Philippines	South Africa	United States	USSR	Zimbabwe	World Trade
1979	76.8	17.8	3.3	139.4	34.3	27.7	6.4	22.2	41.1	88.2	36.7	33.3	15.1	166.0	16.1	756.5
1980	81.9	17.0	2.5	203.7	40.3	18.0	7.2	16.8	58.7	95.5	51.9	28.3	14.7	170.0	16.6	858.9
1981	82.0	18.2	7.2	176.6	42.5	20.6	7.6	17.2	53.8	86.1	32.2	29.1	12.1	174.0	14.4	800.0
1982	96.5	19.6	15.9	97.6	39.8	5.9	7.0	5.5	50.6	66.3	21.6	24.3	3.2	182.0	17.4	685.0
1983	84.5	20.1	17.2	141.2	41.5	21.6	5.9	18.5	54.4	50.9	15.3	22.6	—	187.0	13.3	743.7
1984	84.8	20.5	25.9	192.0	35.1	26.4	7.6	18.4	52.5	64.3	15.0	27.6	14.5	192.0	13.4	848.9
1985[1]	94.5	21.6	22.4	187.4	35.7	28.0	8.7	20.6	44.8	80.4	31.0	27.6	6.1	198.0	12.3	884.3
1986[2]	77.0	22.0	25.4	199.1	36.0	24.3	7.2	19.3	48.3	71.7	15.0	27.6	1.2	205.0	12.1	864.1

[1] Preliminary. [2] Estimate. [3] Content of nickel sulfate and concentrates. *Source: Bureau of Mines* T 427

Salient Statistics of Nickel in the United States In Short Tons

Year	Net Import Reliance as a % of Apparent Consumption	Production		Nickel Consumed[1], By Uses									Stocks, Dec. 31		Nickel & Pdt's (Gross Weight)		Avg. N.Y. Cathode Price Free Mkt. $ Lb.
		Plant[4]	Secondary[3]	Alloy Steels	Cast Irons	Copper Base Alloys	Electroplating Anodes	Nickel Alloys	Stainless & Heat Resisting Steels	Super Alloys	Chemicals	Total	At Consumers' Plants	At Producer Plants	Imports	Exports	
1979	75	44,181	57,404	20.2	4.7	8.5	28.5	41.1	69.6	17.6	1.2	196,293	19,518	28,500	177,205	50,810	
1980	76	44,225	49,291	16.9	4.0	8.8	18.8	27.4	54.7	19.2	1.5	156,299	15,231	60,000	189,188	56,675	2.85
1981	75	48,805	52,076	16.5	3.7	10.6	22.3	10.6	50.6	13.5	2.0	144,851	22,508	100,000	209,008	46,836	2.65
1982	76	44,956	42,968	10.0	1.9	4.3	20.9	17.9	32.2	11.0	2.0	103,981	18,853	62,000	129,787	57,029	2.24
1983	75	33,400	49,852	9.8	1.1	6.3	22.6	24.9	47.0	11.5	2.0	127,845	20,448	38,500	152,333	43,913	2.20
1984	69	44,933	55,167	11.9	1.5	6.7	24.8	29.4	45.8	12.9	2.2	136,861	20,934	37,300	176,715	58,525	2.22
1985	72	36,382	53,645	9.6	3.1	14.9	24.9	25.3	68.0	13.6	2.1	119,907	19,106	17,400	157,690	51,429	2.26
1986[2]	78	N.A.	43,726	8.2	2.6	10.6	21.0	19.9	60.2	12.7	1.9	107,062	16,557	10,300	129,094	23,269	1.86

[1] Exclusive of scrap. [2] Preliminary. [3] From purchased scrap (ferrous & nonferrous). [4] Smelter & refinery. *Source: Bureau of Mines* T 428

Oats

U.S. oats production in 1987/88 was estimated by USDA at 369 million bushels, the smallest in many decades. The crop was 6 percent less than last season's small harvest and 29 percent less than the 1985 crop. Oats production continued in the declining trend begun many years ago, as alternative crops such as corn and soybeans have become more profitable. Oats had been used predominantly as a feed for farm animals like horses, but with extensive mechanization that need has practically disappeared.

Acreage planted to oats rose to 18 million acres from 14.7 million a year earlier. This was due in part to the high price of oats relative to corn. The USDA reported that cash oats prices averaged $1.21/bu. during the 1986/87 season, while corn averaged $1.50/bu. This was the most profitable position for oats in many years. Despite the increase in plantings, harvested area was only 6.9 million acres, because oats are used only as a cover crop in many areas. The major oats-producing states were Iowa, Minnesota, and Illinois. The national average yield in 1987/88 was 53.4 bushels per acre, compared to 56 bushels the previous season and 63.7 bushels in 1985.

Like the season before, there were concerns about the availability of high-quality milling oats. At times in 1987, the price of oats exceeded that of corn in the Minneapolis market. Exacerbating the apparent tightness was producers' reluctance to sell oats that were grown primarily for on-farm use.

Beginning stocks of oats were placed at 133 million bushels, about 28 percent less than a year earlier and the lowest level in many years. With imports expected to increase to 35 million bushels, the supply of oats was estimated by USDA to reach 537 million bushels or 11 percent less than a year ago.

With higher prices, usage was expected to decline by 10 percent to 426 million bushels. Feeding was placed at 350 million bushels or 11 percent less than a year earlier. With oats prices so high relative to feed grains, it was more cost-effective to substitute corn in feed rations. Use of oats for feed, seed, and industrial purposes was expected to total 75 million bushels. Ending stocks of oats were projected by USDA at only 111 million bushels, 17 percent less than a year earlier. This low level of stocks was likely to keep oats prices high relative to corn.

U.S. Government Program

The national average loan rate for oats in 1988 is 89 cents/bu., down from 94 cents the previous season. The target price is $1.57/bu., down from $1.60 in 1987. To participate in the 1988 program, producers must reduce base acreage by 20 percent. A paid diversion hasn't been announced, although there was one for 15 percent of base acreage in 1987.

Futures Markets

Oats futures are traded on the Chicago Board of Trade (CBOT) and the Winnipeg Commodity Exchange (WCE).

World Production of Oats In Thousands of Metric Tons

Crop Year	Argentina	Australia	Canada	China	Denmark	France	Netherlands	Poland	Spain	Sweden	Turkey	United States	USSR	Un. King.	West Germany	World Total
1975–6	433	1,141	4,466		367	1,948	158	2,920	609	1,345	390	9,551	12,495	795	3,445	47,044
1976–7	530	1,073	4,831		256	1,402	103	2,695	505	1,251	400	7,930	18,113	764	2,497	48,744
1977–8	570	991	4,303	1,515	288	1,928	94	2,561	421	1,416	370	10,901	18,407	790	2,714	51,508
1978–9	676	1,763	3,621	1,500	206	2,203	140	2,492	553	1,550	370	8,730	18,507	706	4,049	51,753
1979–0	522	1,411	2,978	1,600	163	1,845	109	2,186	456	1,524	370	7,643	15,200	542	3,697	45,165
1980–1	433	1,128	3,028	1,800	160	1,927	94	2,245	680	1,567	355	6,652	15,544	601	3,249	44,543
1981–2	339	1,617	3,188	1,700	176	1,774	115	2,731	445	1,816	325	7,391	15,000	620	3,200	45,343
1982–3	637	848	3,637	1,660	178	1,802	136	2,608	443	1,663	330	8,602	15,500	575	3,777	47,866
1983–4	593	2,296	2,773	1,650	86	1,374	61	2,377	464	1,268	310	6,923	17,000	465	2,489	45,115
1984–5	610	1,367	2,670	1,680	150	1,892	58	2,604	780	1,904	300	6,875	16,300	515	2,973	46,395
1985–6[1]	400	1,420	2,997	1,680	155	1,800	58	2,734	720	1,668	310	7,528	17,300	620	3,278	48,021
1986–7[2]												5,582				

[1] Preliminary. [2] Estimated. *Source: Foreign Agricultural Service, U.S.D.A.* T.434

United States Official Oat Crop Production Reports In Thousands of Bushels

Year	July 1	Aug. 1	Sept. 1	Dec.	Final	Year	July 1	Aug. 1	Sept. 1	Dec.	Final
1980	449,504	440,655	450,660	457,593	458,263	1984	454,747	455,190	472,460	471,921	473,661
1981	528,118	522,408	509,457	508,083	509,167	1985	498,953	519,028	537,443	518,626	520,800
1982	580,288	591,478	599,008	616,981	620,509	1986	—	443,183	413,025	383,553	384,546
1983	519,002	504,201	472,541	477,303	476,961	1987	—	392,843	—		

Source: Crop Reporting Board, U.S.D.A. T.431

Production of Oats in the United States, by States In Millions of Bushels

Year	Illinois	Indiana	Iowa	Michigan	Minnesota	Missouri	Nebraska	New York	No. Dakota	Ohio	Oregon	Pennsylvania	So. Dakota	Texas	Wisconsin	California
1979	15.6	6.4	63.0	18.9	84.9	2.0	21.2	18.0	37.0	20.3	4.0	18.4	94.4	16.8	55.9	4.1
1980	14.0	5.9	62.0	20.1	82.7	2.0	15.6	17.9	13.5	19.4	4.1	19.0	66.0	12.6	58.7	4.3
1981	13.5	5.5	59.5	21.1	90.1	4.6	15.8	17.9	44.2	17.0	4.6	20.0	70.5	18.9	52.6	3.6
1982	11.8	6.7	54.2	28.4	97.9	3.3	26.7	18.2	55.7	23.5	6.4	19.8	123.5	10.7	49.3	3.4
1983	12.6	4.6	38.3	15.6	77.0	2.5	13.6	11.4	63.6	15.4	6.0	16.2	79.2	24.0	45.1	2.9
1984	11.4	5.0	47.4	21.7	78.0	1.6	15.7	10.6	50.0	13.9	6.6	16.0	86.8	8.8	53.3	3.5
1985	12.5	7.6	57.8	26.1	77.0	5.8	25.6	17.7	44.5	26.4	9.2	21.0	79.5	15.0	51.5	3.0
1986	13.8	6.4	37.8	17.0	43.4	5.0	21.2	12.4	38.5	12.2	7.6	16.7	46.2	8.4	52.7	3.2
1987[1]	12.2	6.7	35.8	17.1	39.0	3.8	19.2	14.7	45.1	18.3	5.4	16.6	56.4	10.3	44.8	2.6

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.437

Oats Supply and Utilization in the United States

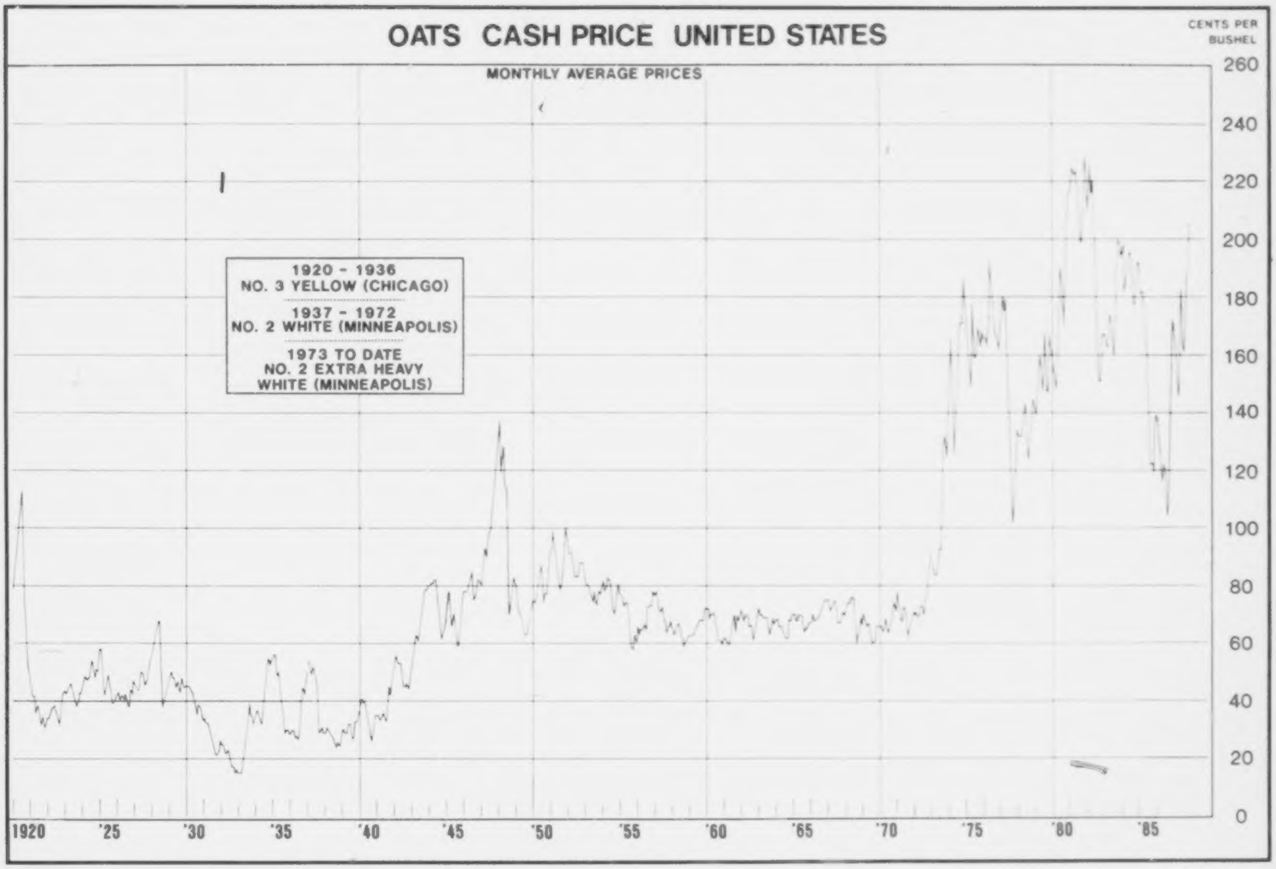
Year June–May	Acreage Planted	Acreage Harvested	Yield	Production	Imports	Total supply	Feed & residual	Food & industrial	Seed	Exports	Total use	Ending stocks	Farm price	Nat. avg. supp. rate
	— Mil. acres —		Bu/acre	Mil. bu									$/bu.	
1980/1	13.4	8.7	53.0	459	1.3	697	432	41.0	33.0	13.3	520	177	1.79	1.16
1981/2	13.6	9.4	54.2	510	1.6	688	453	41.2	35.4	6.6	536	152	1.89	1.24
1982/3	14.0	10.3	57.8	592.6	3.9	748.4	440.6	41.7	43.3	3.0	528.6	219.8	1.49	1.31
1983/4	20.3	9.1	52.6	477.0	30.1	726.9	470.9	40.9	31.9	2.1	545.8	181.1	1.62	1.36
1984/5	12.4	8.2	58.0	473.7	34.0	688.8	432.0	41.0	34.6	1.3	508.9	179.9	1.67	1.31
1985/6	13.3	8.2	63.7	520.8	27.5	728.2	459.9	44.0	38.4	2.2	544.5	183.7	1.23	1.31
1986/7[1]	14.7	6.9	56.3	386.4	33.3	603.4	394.8	45.0	28.1	2.8	470.7	132.7	1.21	.99
1987/8[2]	18.0	6.9	53.3	369.2	35.0	536.9	343.9	—80.0—		2.0	425.9	111.0	1.55	.94

[1] Preliminary. [2] Estimate. *Source: Economic Research Service, U.S.D.A.* T.430

Volume of Trading in Oats Futures at Chicago Board of Trade In Millions of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1978–9	103.8	121.3	120.0	149.0	141.0	67.7	59.3	93.9	51.6	95.4	87.1	135.7	1,225.3
1979–0	127.8	111.6	76.1	98.6	96.0	47.1	56.9	85.3	53.8	81.1	131.5	144.8	1,110.6
1980–1	200.4	183.9	199.6	197.1	167.9	151.0	124.8	170.2	129.2	136.4	120.5	162.2	1,943.2
1981–2	125.3	134.6	117.0	144.5	264.9	221.0	166.7	184.7	204.3	223.6	196.5	247.9	2,231.0
1982–3	221.0	218.9	151.2	113.2	127.6	82.5	121.1	154.0	141.3	213.6	159.1	159.7	1,863.2
1983–4	160.1	254.5	180.4	95.1	102.4	57.9	58.9	91.9	77.1	89.8	59.8	76.6	535.0
1984–5	64.7	88.7	38.5	41.0	48.8	39.5	46.1	38.1	33.7	33.7	30.9	31.2	534.9
1985–6	42.6	55.6	37.2	57.0	53.9	35.2	54.7	41.7	41.9	62.0	59.2	62.3	603.3
1986–7	42.0	45.6	47.0	47.2	93.6	107.6	94.0	138.3	120.6	106.2	121.3	117.0	1,080.4
1987–8	103.7	153.6	109.4	135.4	139.4	116.6							

Source: Chicago Board of Trade T.440



Average Cash Price[1] of No. 2 Heavy White Oats at Minneapolis In Cents Per Bushel

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average[1]	– No. 2 Heavy – White Portland	Toledo
1977–8	115	102	111	117	134	132	132	132	133	140	143	136	127	144	136
1978–9	124	128	136	139	147	140	147	154	160	148	155	168	143	179	137
1979–0	160	147	155	165	167	159	152	150	148	152	162	188	157	187	160
1980–1	180	170	186	196	215	216	220	225	223	221	223	218	204	242	217
1981–2	202	199	202	209	228	210	223	226	216	221	216	212	214	236	223
1982–3	187	153	151	151	167	167	167	163	163	173	171	167	169	218	155
1983–4	160	179	194	200	197	194	198	182	188	189	196	192	187	195	201
1984–5	184	177	179	184	192	187	181	182	179	173	165	159	181	212	192
1985–6	144	123	124	119	132	139	137	130	127	116	122	118	131	160	108
1986–7	105	112	129	139	172	166	164	156	146	159	183	164	146	153	120
1987–8[2]	161	177	185	197	205										

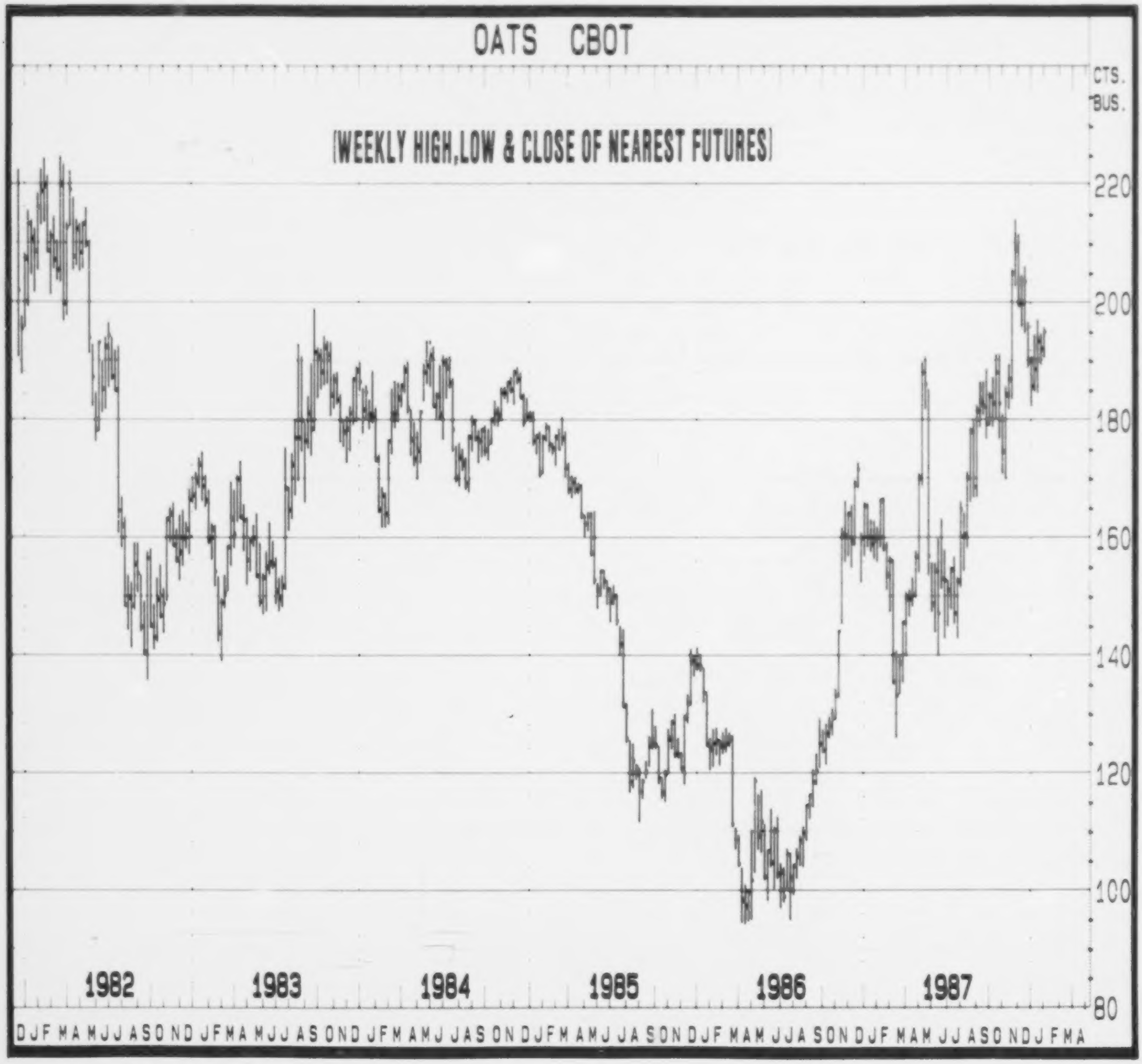
[1] Weighted average of reported daily cash sales. [2] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.435

Month-End Open Interest of Oats at the Chicago Board of Trade & Winnipeg Commodity Exchange

	Chicago (In Millions of Bushels)												Winnipeg (In Contracts)			
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mar.	June	Sept.	Dec.
1979	31.1	32.8	24.4	29.8	25.4	28.8	27.0	32.2	29.2	28.6	26.2	25.8	2,515	2,778	3,085	2,635
1980	23.8	23.2	17.5	23.2	21.2	25.8	35.3	41.3	41.6	39.5	37.6	27.6	2,827	2,315	3,178	3,598
1981	36.2	36.7	27.0	25.2	27.8	29.7	25.3	23.9	29.0	45.6	42.4	34.6	3,295	2,625	2,203	1,863
1982	36.5	39.6	40.5	40.5	43.4	45.8	43.4	32.6	30.5	31.4	23.7	21.5	1,298	1,185	1,155	1,225
1983	30.8	35.8	43.3	45.1	48.8	42.5	49.8	48.2	41.8	36.7	26.0	22.1	1,202	1,313	3,170	1,978
1984	21.8	24.3	23.7	21.5	21.0	21.5	24.2	23.1	23.3	22.4	20.8	18.7	1,529	3,127	3,551	1,073
1985	19.4	19.0	16.5	16.2	14.5	14.9	16.7	16.6	15.8	21.3	19.3	19.3	1,028	1,248	1,581	1,028
1986	18.5	18.7	20.8	19.3	16.5	14.9	15.3	16.8	13.7	18.9	25.2	30.3	421	513	607	1,700
1987	35.4	35.7	31.9	29.2	26.2	24.5	30.4	36.3	33.2	30.4	28.1	30.6	1,533	1,417	1,427	1,784

Source: Chicago Board of Trade & Winnipeg Commodity Exchange

T.438



High, Low & Closing Prices of May Oats Futures at the Chicago Board of Trade In Cents per Bushel

Year of Delivery		Year Prior to Delivery								Delivery Year					Life of Delivery Range
		May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1981	High	189	191	219½	217½	227	228	244½	244	232½	237	225¾	229½	232¼	244¼
	Low	181	179½	189	197½	207½	210	216½	210½	210½	212	206½	206	201	179½
	Close	183	189	212½	217	218	221	243½	226¾	216¼	224¼	223	213	224½	—
1982	High	231½	230	222½	217	194½	207	222½	212	209½	213¼	206	221¾	215	231½
	Low	226¼	212½	210	193	180½	185¼	197¾	177½	193¾	191½	186	202¾	200¼	177½
	Close	229¼	215	216	194½	185¾	205¾	206	200¼	207¾	199	203¼	208	207	—
1983	High	196	185	182½	177½	175	172¼	184½	179¾	181¼	175½	169	172½	163½	196
	Low	188½	173½	164	158½	163½	161	165½	172	172¼	149	151	151¾	154	149
	Close	189	176½	167¾	171	170¼	164	177½	174½	174½	149¼	160¼	155¾	157¼	—
1984	High	185	183½	200	226	220	206	199½	192¼	188	181½	185½	189¼	193	226
	Low	179½	177	181	189½	199¼	193	184½	180½	178	163	169	169¾	171½	163
	Close	179½	181½	197½	200	206	193	184½	188¾	180	168¾	185½	171	193	—
1985	High	—	191	185¾	181½	175	179¾	180¾	179¾	177½	174½	173¼	170	164	191
	Low	—	181	175	171	171	173	176	172½	169¼	167½	167¼	160¼	156¾	156¾
	Close	—	190	178½	172¼	173½	179	179	176¾	172¼	170¼	167¾	160½	160½	—
1986	High	163	161	150½	135	135¾	138¾	141¾	143½	142	129	122½	109	119	163
	Low	160	149¾	133½	127½	128	130½	134¾	133½	121½	118	106¾	94¼	101½	94¼
	Close	161	150¾	133¾	130	135	138½	135¼	142¼	124¼	120	108¼	109	108½	—
1987	High	116½	119	117½	123	128¾	135¼	150¾	155¾	157	162	147½	166¾	190½	190½
	Low	116¼	112½	110	115	120½	126	134¼	136	151¾	144	130½	141½	167¼	110
	Close	116¼	115½	113¼	122¾	128	133¾	146	155¾	154½	149½	140½	166¾	183¼	—
1988	High	159	174	170½	188½	188	190	194½	191½						
	Low	150¾	147	155½	162¾	176	167½	162	173						
	Close	150¾	160	170	179	180	169¼	189	175½						

Source: Chicago Board of Trade

T.439

Average Price Received by U.S. Farmers for Oats In Cents Per Bushel

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average[1]
1979–0	133	124	129	131	141	131	139	137	134	138	143	148	136
1980–1	150	153	163	165	184	192	198	201	208	205	205	199	179
1981–2	184	172	174	178	188	194	197	199	202	199	199	188	189
1982–3	157	139	135	132	140	144	146	148	149	154	154	151	149
1983–4	146	145	155	162	167	173	181	188	181	182	184	180	162
1984–5	168	162	160	169	164	172	174	169	168	168	160	159	167
1985–6	131	116	110	108	117	120	118	116	114	113	121	110	123
1986–7	90	86	99	111	132	144	146	147	146	149	157	151	121
1987–8	129	141	148	154									

[1] Weighted average by sales. *Source: Crop Reporting Board, U.S.D.A.*

T.433

Oats Under Price Support Through the End of the Month (Cumulative Total from Current Season's Crop) In Millions of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1977–8	7.8	30.0	48.5	54.9	59.5	62.3	65.3	67.1	73.2	76.1	77.9	78.9	78.9
1978–9	.5	8.2	14.9	18.5	21.2	22.4	23.9	24.2	24.5	24.7	24.8	24.8	24.8
1979–0	—	2.2	5.0	7.1	8.7	9.5	10.5	11.0	11.6	12.1	12.2	12.2	12.2
1980–1	—	1.8	3.4	4.4	4.9	5.7	6.0	6.1	6.2	6.3	6.3	6.3	6.3
1981–2	.6	3.4	6.1	7.4	8.0	8.7	9.3	9.5	9.6	9.6	9.6	9.6	9.6
1982–3	.1	1.2	4.0	5.8	6.9	7.7	8.3	8.5	8.8	9.0	9.1	9.1	9.1
1983–4	.1	1.0	1.4	2.8	3.1	3.2	3.4	3.5	3.5	3.6	3.6	3.6	3.6
1984–5	—	.9	2.1	2.6	2.8	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1
1985–6	.1	1.0	2.3	3.6	4.0	4.3	4.6	4.8	4.9	5.2	5.3	5.3	5.3
1986–7	.2	1.8	4.1	5.9	6.7	7.2	7.4	7.6	7.7	7.7	7.7	7.7	7.7
1987–8	—	.1	1.4										

Source: U.S. Department of Agriculture

T.432

Olive Oil

World production of olive oil in 1987/88 was projected by USDA to rise 7 percent to 1.66 million tonnes. Olive oil production is cyclical; it tends to rise and fall on a biennial basis. The major producers are Italy, Spain, Greece, and Tunisia. Harvesting begins in mid-November in the northern Mediterranean and later in the southern regions. The harvest is usually complete by March. Major producing countries grow crops in opposite cycles of one another. For example, Spain was the leading producer in 1982, followed by Italy. In 1983, Italy led, and Spain had a smaller crop. In 1984, Spain led, while Italy was foremost in 1985. In 1986, Spain was the main producer, followed by Italy and Greece.

World exports of olive oil were projected by USDA at 430,000 tonnes, about 17 percent less than the previous season. Spain emerged as the leading exporter of olive oil in the mid-1980s. The European Community (EC) subsidizes olive oil production, consumption, and exports. Tunisia once exported most of its olive oil to the EC, but with Spain's entry into the EC, Tunisia's exports should be limited. Italy is the largest importer of olive oil, but also exports it to the U.S. and USSR. U.S. imports of olive oil have been increasing, while U.S. imports of other vegetable oils have been declining.

Global consumption of olive oil in 1987 was placed at 1.74 million tonnes, about the same level as a year earlier. Olive oil consumption has remained fairly flat in recent years. Italy remains the largest consumer, followed by Spain and Greece. Morocco and the U.S. are two of the fastest-growing markets.

With 1987/88 consumption above production, world ending stocks were expected to be drawn down to 620,000 tonnes, 10 percent less than a year earlier.

World Production of Olive Oil (Pressed Oil)[2] In Thousands of Metric Tons

Crop Year[2]	Algeria	Greece	Italy	Jordan	Lebanon	Argentina	Morocco	Portugal	Spain	Syria	Tunisia	Turkey	Libya	Israel	World Total
1975–6	18	257	633	1	5	17	38	36	455	33	180	96		5	1,788
1976–7	15	224	301	5	12	12	30	36	390	56	85	150		—	1,334
1977–8	5	234	688	2	6	14	15	30	361	38	130	60		4	1,594
1978–9	14	240	419	7	6	15	20	40	500	66	83	160	5	0	1,590
1979–0	10	203	626	1	15	22	39	66	433	42	85	52	4	5	1,599
1980–1	18	321	606	10	2	11	23	32	479	83	145	170	8	2	1,921
1981–2	15	229	515	5	12	14	34	23	300	44	70	60	8	4	1,350
1982–3	13	324	430	8	5	9	30	79	666	97	55	170	10	4	1,908
1983–4	10	230	824	10	4	10	22	9	258	31	150	40	10	3	1,644
1984–5	15	185	343	8	6	9	28	47	689	63	105	80	8	4	1,601
1985–6[1]		330	616					38	397	41	105	70			1,620
1986–7[3]								50	489	70	120	150			1,550
1987–8[3]		260	310												1,630

[1] Preliminary. [2] Total pressed oil in marketing year ending Oct. 31; excludes sulfur oil extracted from residues. [3] Forecast.

Source: Foreign Agricultural Service, U.S.D.A.; Oil World. T.441

Average Unit Value of U.S. Olive Oil Imports In Thousand Dollars Per Metric Ton

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	1,336	1,313	1,301	1,307	1,424	1,357	1,379	1,342	1,438	1,361	1,397	1,284	1,353
1985	1,256	1,169	1,215	1,235	1,256	1,249	1,251	1,257	1,308	1,333	1,292	1,338	1,263
1986	1,402		1,402	1,469		1,495	1,587	1,554	1,751			1,533	
1987	1,723		1,652	1,726		1,577	1,588	1,608	1,563				

Source: U.S. Bureau of the Census

World Olive Oil Supply and Distribution In Thousands of Metric Tons

Crop Year	Production	Exports	Imports	Consumption	Ending Stocks
1980–1	1,921	267	260	1,663	864
1981–2	1,337	204	296	1,593	700
1982–3	1,908	360	401	1,627	1,022
1983–4	1,644	296	338	1,810	908
1984–5	1,601	480	504	1,730	792
1985–6	1,620	370	490	1,720	830
1986–7[1]	1,550	520	560	1,730	690
1987–8[2]	1,630	430	450	1,730	610

[1] Preliminary. [2] Forecast. *Source: Foreign Agricultural Service, U.S.D.A.*

Onions

Salient Statistics of Onions in the United States

Crop Year	Stocks—Jan. 1 (1,000 Cwt.) Common Storage	Cold Storage	Total Stocks	Acres Harvested Acres	Yield Per Acre Cwt.	Production 1,000 Cwt.	Price Per Cwt. Dollars	Farm Value $1,000	Domestic Exports (Fresh) Mil. Pounds	Imports (Fresh) Mil. Pounds	Per Capita[2] Utilization (Lbs.)	Frozen
1979	6,556	66	6,622	123,910	312	38,602	6.98	237,432	156.7	157.4	17.23	.74
1980	7,752	99	7,851	113,160	296	33,526	11.40	347,054	256.6	132.8	14.29	.68
1981	6,235	78	6,313	112,030	314	35,155	14.70	475,470	420.1	135.5	14.07	.7
1982	5,560	35	5,595	125,920	332	41,861	8.24	307,501	140.7	165.9	18.19	.8
1983		29		123,040	315	38,762	12.40	431,906	183.2	204.9	16.71	.6
1984		23		129,350	338	43,657	10.60	422,538	273.9	283.6	18.42	.7
1985[1]		27		122,760	367	45,059	9.08	347,247	121.6	263.7	19.42	
1986[1]				115,340	375	43,301	10.90	437,669	164.7	247.7	17.88	

[1] Preliminary. [2] Onions & shallots. Includes 0.1 lbs. of shallots in each year. [3] Year beginning July. *Source: Economic Research Service, U.S.D.A.*

T.443

Production of Onions in the United States In Thousands of Hundredweight (Cwt.)

Year	Spring Texas	California	Arizona	Total (All)	Summer New Mexico	Texas	California	Colorado	Idaho	Michigan	Minnesota	New York	Oregon	Total (All)	Grand Total
1980	3,569	1,683	623	5,875	1,131	1,764	6,000	2,460	2,453	1,800	201	4,433	4,538	27,601	33,476
1981	2,700	2,160	512	5,372	1,242	1,488	7,025	2,925	2,625	2,446	199	3,933	4,460	29,649	35,021
1982	3,492	2,805	876	7,173	1,643	1,544	10,395	3,255	2,475	2,336	168	4,550	4,821	34,464	41,637
1983	3,800	2,166	656	6,622	1,248	1,643	9,179	3,432	2,475	2,573	158	2,793	5,292	32,140	38,762
1984	3,348	2,734	805	6,887	1,365	1,560	9,819	4,636	2,323	2,933	156	3,384	6,785	36,770	43,657
1985	3,230	3,510	564	7,304	1,463	943	9,250	5,355	3,740	2,535	194	3,960	6,785	37,755	45,059
1986[1]	3,600	2,886	660	7,146	1,733	1,537	9,684	4,590	3,710	1,653	208	3,456	5,913	35,789	42,935
1987[1]		2,750													

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.*

T.444

Cold Storage Stocks of Fresh Onions in the United States In Thousands of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1980	9,913	8,446	6,430	4,070	1,124	442	1,967	954	1,298	2,089	2,265	4,901
1981	7,777	6,972	4,422	3,730	1,247	591	1,828	649	143	719	665	3,219
1982	3,474	3,963	3,319	1,813	—	—	275	—	—	952	—	—
1983	4,183	4,407	4,116	2,988	1,042	235	325	724	385	785	1,348	8,826
1984	8,648	7,006	2,527	343	1,230	556	527	1,212	5,270	5,618	5,354	6,949
1985	7,465	5,518	4,454	2,248	810	4,806	2,804	1,280	6,205	6,526	5,890	6,128
1986	5,171	5,325	2,572	1,573	545	1,769	1,627	1,001	346	2,116	4,693	7,784
1987[1]	6,773	5,330	2,710	429	137	2,403	1,181	137	1,276	2,500	3,823	6,640

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.*

T.445

Average Price Received by Growers for Onions in the U.S. In Dollars Per Hundred Pounds (Cwt.)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average[2]
1980	4.73	4.34	5.32	6.94	10.00	10.70	9.19	10.30	10.30	10.90	11.50	14.20	12.40
1981	15.40	17.20	23.60	26.10	22.40	18.10	17.70	15.40	11.50	12.80	14.80	14.60	14.70
1982	17.60	17.40	13.20	12.70	12.60	9.43	11.90	12.60	7.83	7.12	6.90	6.35	8.24
1983	5.13	6.35	7.59	10.70	10.60	9.62	10.70	10.90	10.80	11.00	12.90	18.30	12.40
1984	17.30	19.40	25.20	25.30	13.90	11.00	14.00	13.60	11.00	9.52	10.30	11.90	10.60
1985	10.20	8.91	7.95	9.12	13.00	10.90	19.20	11.20	7.61	6.40	6.97	8.19	9.08
1986	7.70	7.01	7.07	9.37	9.31	10.70	11.90	9.78	10.90	12.00	10.60	11.80	10.90
1987[1]	16.90	16.70	19.40	26.30	23.10	17.00	14.30	9.79	10.30	9.77	8.82	9.84	15.19

[1] Preliminary. [2] Seasonal Average. *Source: Crop Reporting Board, U.S.D.A.*

T.448

Orange Juice

U.S. orange production in 1987 was forecast at 191.5 million boxes, 5 percent more than the previous season. The estimate for Florida's orange output, 135 million boxes, was 13 percent higher than in 1986/87. This represented continued improvement in crop outturn from the freeze-ravaged conditions of 1984/85. Florida's frozen concentrated orange juice yield, in the season beginning December 1987, was anticipated at 1.48 gallons per box, up from the previous year's yield of 1.38 gallons.

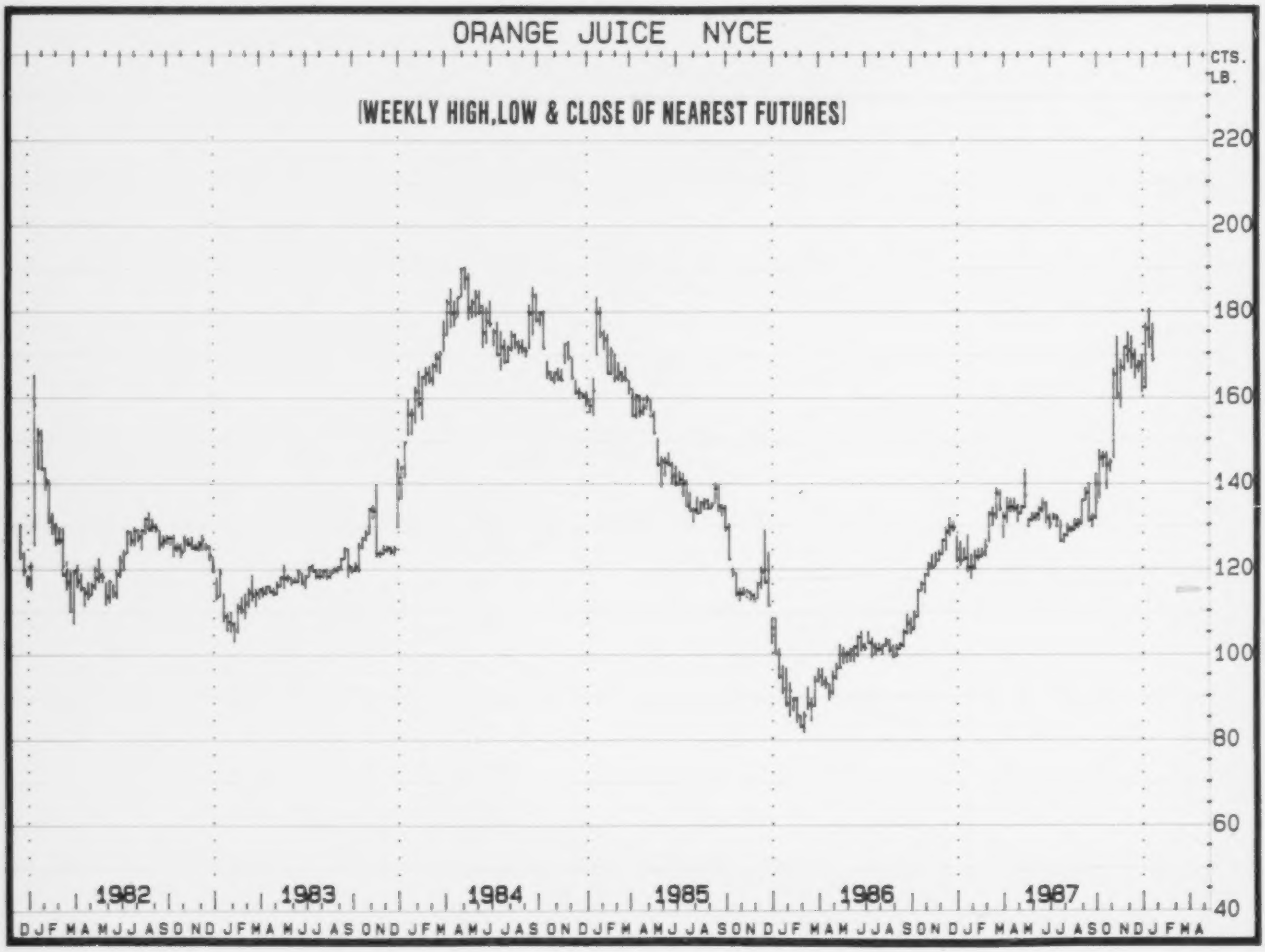
Higher orange juice prices were expected because of a better economic climate and a reduction in the Brazilian orange crop. The USDA cut its estimate of Brazil's 1987/88 crop to 225 million boxes from a previous estimate of about 246 million. The crop's size was still above the previous year's 220 million boxes. Only 190 million boxes were expected to be processed.

With somewhat tight Brazilian juice supplies, U.S. orange juice prices rose during 1987. The average price of all forms of orange juice averaged $3.41 per gallon, versus $3.18 in 1986. December 1987 prices were about 9 percent higher than a year earlier. Total retail FCOJ availability, based on a yield of 1.48 gallons per box, was projected at 151.3 million gallons, with 146.4 million being packed from round oranges and temples, and the remaining 4.9 million from specialty fruit.

Import levels depend, in part, on the relationship between Florida and Brazilian FCOJ prices. U.S. imports were expected to range between 66.2 million and 78.0 million boxes. Movement was expected to be 214.4 million to 224.1 million gallons, depending on price. Carryover, correspondingly, was projected at 43 million to 45 million gallons or about a 10-week supply.

Futures Market

FCOJ futures are traded on the Citrus Associates of the New York Cotton Exchange (NYCE).



ORANGES AND ORANGE JUICE

World Production of Oranges[3] In Thousands of Metric Tons

Season	Argentina	Australia	Brazil	Cuba	Egypt	Greece	Israel	Italy	Japan	Mexico	Morocco	South Africa	Spain	Turkey	United States	World Total[3]
1978–9	925	451	6,471		928	506	992	1,959	3,637	1,398	827	600	2,526	806	8,310	24,050
1979–0	921	448	9,282		1,148	360	943	2,104	3,945	1,810	1,024	565	2,597	835	10,734	38,502
1980–1	905	381	9,872	386	991	561	812	2,057	3,229	1,600	965	569	2,605	862	9,514	36,725
1981–2[3]	606	421	9,942	360	895	704	1,105	1,752	37	1,650	695	546	1,629	675	7,025	28,666
1982–3	639	392	9,210	400	1,201	665	889	1,498	52	1,380	670	510	1,652	656	8,827	29,294
1983–4	500	488	9,588	385	1,243	691	962	2,299	60	1,300	747	512	2,077	730	6,691	28,927
1984–5[1]	653	520	11,302	390	1,182	775	880	1,865	59	950	686	486	1,365	760	6,227	28,759
1985–6[2]	500	540	10,526	390	1,200	650	850	2,000	66	1,500	805	535	1,890	700	6,815	29,759
1986–7[2]															7,019	

[1] Preliminary. [2] Estimate. [3] Data prior to 1981–82 include tangarines. *Source: Foreign Agricultural Service, U.S.D.A.* T.449

U.S. Salient Statistics of Oranges & Orange Juice

Season	Production[2] Million Boxes			Farm Price $ Per Box	Farm Value Million $	Frozen Concentrated Orange Juice—Florida in Million Gallons				Florida Crop Processed Million Boxes				U.S. Imports of Frozen Concentrated Orange Juice In Million Gallons[4]		
	California	Florida	Total U.S.			Carry-in	Pack	Total Supply	Total Season Movem.	Frozen Concentrates	Juice	Total Processed	Yield Per Box (Gall.)	Brazil	Others	Total
1977–8	42.6	167.8	220.1	5.45	1,198.7	29.1	185.0	200.8	185.1	132.2	25.3	166.0	1.23	139.5	11.3	150.7
1978–9	37.3	164.0	210.6	6.15	1,296.0	33.5	206.2	221.9	206.1	130.2	22.8	159.8	1.34	152.3	7.7	160.0
1979–0	59.4	206.7	273.6	4.76	1,304.2	37.4	256.4	293.8	239.0	174.9	24.4	206.6	1.34	97.7	2.3	100.0
1980–1	65.3	172.4	244.6	4.85	1,327.7	57.3	249.6	306.9	240.6	145.3	19.6	171.5	1.21	203.1	11.1	214.2
1981–2	41.9	125.8	176.7	5.30	1,295.3	69.0	214.9	283.9	230.5	105.2	16.3	126.1	1.28	374.0	22.1	396.1
1982–3	76.1	139.6	225.2	6.61	1,167.8	53.4	228.4	281.8	239.0	114.6	18.1	135. 5	1.48	337.2	27.6	364.8
1983–4	48.5	116.7	169.5	5.85	1,317.1	42.8	239.9	282.7	228.3	94.5	17.0	114.4	1.29	510.1	23.5	533.6
1984–5	52.4	103.9	158.8	7.69	1,304.3	54.4	209.6	264.0	215.7	86.1	14.9	102.9	1.38	578.2	18.5	596.3
1985–6[1]	53.9	119.2	175.7	9.19	1,459.3	48.3	215.1	263.4	226.5	96.1	N.A.	114.7	1.38	500.5	45.7	546.2
1986–7[3]	58.5	119.7	182.2	6.09	1,092.2	37.0				96.2	N.A.	116.8	1.51			
1987–8[3]	52.0	130.0	186.4		1,263.6								1.46			

[1] Preliminary. [2] Fruit ripened on trees, but destroyed prior to picking is not included. [3] Estimate. [4] Single strength.
Source: Economic Research Service, U.S.D.A. Florida Citrus Processors Assoc. T.450

U.S. Cold Storage Stocks of Orange Juice Concentrate[2] In Millions of Pounds (Gallon Equivalent)

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1980	559.0	827.2	1,062.5	1,124.8	1,221.4	1,429.7	1,500.3	1,369.3	1,182.4	963.7	842.7	679.5
1981	722.4	907.1	1,053.2	1,180.1	1,264.4	1,502.2	1,491.3	1,307.8	1,178.8	1,022.2	892.2	759.1
1982	753.1	957.0	1,172.3	1,300.7	—	—	1,406.2	—	—	846.5	—	—
1983	835.9	1,028.1	1,016.2	963.3	1,187.0	1,408.0	1,318.6	1,192.4	960.8	810.7	684.8	595.0
1984	631.1	785.7	956.3	976.3	920.1	998.2	903.2	780.4	707.0	595.8	557.3	564.8
1985	651.6	883.4	1,050.6	1,102.7	1,188.6	1,229.5	1,063.7	1,036.1	912.4	882.2	778.8	656.0
1986[1]	679.2	888.4	966.8	911.5	1,031.6	1,047.5	1,056.9	920.3	855.3	715.4	577.8	524.8
1987[1]	621.2	877.8	1,015.7	937.1	994.8	1,112.6	1,108.6	945.9	797.6	843.2	671.8	567.9

[1] Preliminary. [2] Adjusted to 42° BRIX basis (9.896 lbs./gal.) beg. 1/1/81; prev. 43.4°. *Source: Crop Reporting Board, U.S.D.A.* T.451

Month–End Open Interest of Frozen Concentrated Orange Juice Futures In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	7,612	6,501	6,126	6,390	6,210	5,923	6,186	6,920	8,046	9,063	9,239	9,582
1981	7,980	10,787	12,018	11,354	11,667	11,925	10,675	9,751	9,454	7,991	7,654	8,037
1982	9,519	8,634	6,580	6,238	6,227	5,808	6,007	6,395	5,666	5,775	7,106	9,359
1983	9,720	7,136	6,229	6,267	6,225	6,264	5,969	6,413	6,487	6,155	5,732	7,186
1984	8,873	10,650	11,676	11,733	11,295	12,965	11,646	10,350	10,039	9,356	9,339	8,542
1985	7,854	6,680	6,452	6,373	5,885	5,504	4,895	4,300	4,756	5,701	7,156	12,951
1986	8,763	7,782	7,827	6,469	7,013	7,295	6,908	6,682	7,470	8,774	9,460	11,290
1987	9,916	11,336	9,318	9,265	8,249	7,650	6,557	6,496	7,925	8,097	9,798	10,562

Source: Citrus Assoc. of the N.Y. Cotton Exchange T.456

High, Low & Closing Prices of May Orange Juice[1] Futures at New York In Cents per Pound

Year of Delivery		Year Prior to Delivery										Delivery Year					Life of Delivery Range
		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1983	High	142.85	130.20	132.00	130.00	130.20	133.50	133.25	130.30	128.60	129.05	122.00	112.80	114.75	115.50	120.50	163.75
	Low	122.00	121.95	126.05	123.80	126.50	127.60	129.00	125.55	126.00	121.25	105.70	103.10	107.30	113.10	113.60	103.10
	Close	127.50	126.50	127.75	130.00	128.25	133.50	129.50	126.90	127.00	121.85	107.70	110.35	114.70	113.70	119.70	—
1984	High	106.90	104.95	104.30	108.50	110.00	111.30	114.25	121.00	122.50	149.00	159.50	167.20	177.40	186.40	190.00	190.00
	Low	104.00	100.50	101.40	103.30	106.90	109.20	110.85	109.00	119.70	121.10	141.00	155.00	160.00	174.10	177.75	100.50
	Close	104.80	102.05	103.70	106.60	108.80	110.95	112.45	120.50	121.75	146.00	156.75	163.00	174.20	186.15	177.75	—
1985	High	170.00	176.00	181.50	179.50	168.50	172.00	185.00	181.75	172.90	170.00	183.50	178.00	170.35	161.40	159.90	185.00
	Low	155.00	166.50	174.50	167.00	164.90	167.00	167.50	166.50	166.80	162.40	159.20	166.60	160.30	154.70	151.00	114.90
	Close	165.60	176.00	178.65	168.00	166.90	169.70	181.20	166.90	169.90	163.90	178.60	168.10	161.60	158.20	151.20	—
1986	High	166.25	160.50	152.45	140.90	133.45	127.00	128.90	128.10	116.60	131.50	113.25	92.95	95.70	96.40	101.00	178.40
	Low	160.35	152.50	136.70	133.10	124.00	122.95	122.65	111.95	113.00	107.25	88.30	83.50	82.60	89.00	93.10	82.60
	Close	161.30	152.50	140.00	133.15	124.65	122.95	128.50	114.45	114.55	108.15	89.00	84.30	95.60	92.75	96.55	—
1987	High	91.40	94.75	101.85	109.95	110.00	108.70	109.50	120.20	123.70	134.80	128.80	127.85	138.50	136.25	143.00	143.00
	Low	84.50	90.50	92.95	100.40	101.10	105.80	106.80	108.00	119.50	123.95	118.60	120.85	127.00	128.10	132.25	84.45
	Close	91.40	92.75	100.80	108.25	107.70	106.20	108.25	119.70	123.65	125.10	121.20	126.80	128.90	132.25	130.80	—
1988	High	130.05	126.50	126.95	123.90	124.25	128.10	132.00	145.25	171.00	174.00						
	Low	123.40	123.40	124.15	119.25	120.15	122.90	128.50	132.20	146.00	164.50						
	Close	123.40	125.00	124.20	120.50	122.85	128.10	132.00	145.25	167.50	165.70						

[1] Frozen concentrated orange juice. *Source: Citrus Associates of the N.Y. Cotton Exchange, Inc.* T.455

Volume of Trading of Frozen Concentrated Orange Juice Futures In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	21,982	13,010	22,555	9,337	6,742	7,914	8,308	9,715	11,800	16,276	13,042	22,183	162,864
1981	35,041	32,755	49,107	39,785	32,611	35,459	32,944	29,979	22,927	25,435	19,747	31,392	387,182
1982	28,968	25,524	27,139	17,038	12,206	21,501	14,577	14,242	8,424	9,606	8,647	19,188	207,070
1983	28,122	20,345	11,754	6,704	7,614	7,823	4,881	4,531	5,621	9,690	6,409	10,773	124,267
1984	33,189	36,206	34,643	32,774	26,882	30,273	23,803	15,246	36,508	23,693	11,737	12,410	317,364
1985	28,768	20,572	8,135	11,529	9,514	10,011	8,238	7,893	9,395	16,320	11,115	49,268	190,758
1986	39,756	24,971	21,413	13,209	13,909	14,979	10,469	9,887	10,940	17,513	9,551	24,946	211,543
1987	28,566	24,342	27,999	19,569	10,651	15,470	8,805	10,710	12,330	20,321	20,724	26,758	266,641

Source: Citrus Assoc. of the N.Y. Cotton Exchange T.452

Wholesale Index Price of Frozen Orange Concentrate[1] 1967 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	260.2	260.2	260.2	254.3	254.3	249.2	249.2	249.2	249.2	249.2	236.5	236.5	250.7
1981	241.1	280.2	312.2	338.1	338.1	338.1	338.1	338.1	335.5	334.0	323.4	313.1	319.2
1982	312.9	337.7	334.5	326.5	315.4	308.4	308.7	307.1	307.8	307.7	307.5	303.2	315.5
1983	304.0	300.8	299.6	299.1	302.3	300.7	301.1	300.8	302.4	302.5	303.8	303.9	301.8
1984	316.4	361.6	373.3	380.3	385.2	395.0	387.7	392.4	403.7	410.2	408.3	407.8	385.2
1985	400.8	419.1	419.4	418.3	420.2	416.9	410.7	396.7	390.1	375.7	365.6	355.1	398.7
1986	328.5	324.6	307.2	297.0	296.3	296.7	296.5	296.7	295.0	304.1	310.4	319.2	305.9
1987	332.4	336.4	338.0	344.7	341.1	346.3	342.7	342.9	348.6	348.0			

[1] Packer to wholesale distributor, or retail chain store, f.o.b. plant. *Source: Bureau of Labor Statistics (0242–0301)* T.454

Wholesale Price of Oranges (California) F.O.B. Packed Fresh In Dollars Per Box

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	9.72	9.72	10.60	9.54	9.21	9.39	9.52	9.52	9.50	9.54	13.40	11.60	10.11
1981	11.00	10.90	10.20	9.78	10.00	12.10	14.10	12.80	12.60	11.70	11.50	12.70	11.62
1982	13.50	13.80	13.50	14.20	17.20	17.50	18.70	20.30	28.30	28.40	16.50	12.80	17.89
1983	10.80	10.40	10.50	10.30	9.85	10.60	11.70	11.30	10.20	9.30	12.90	13.00	10.90
1984	13.10	12.00	11.60	12.60	19.20	22.40	22.50	23.30	24.40	24.40	19.30	18.50	18.61
1985	18.70	17.50	16.20	17.00	17.40	16.50	15.90	15.40	15.00	13.70	15.60	16.20	16.26
1986	15.10	13.70	13.80	12.90	13.10	12.10	12.10	12.40	12.90	12.60	16.30	15.00	13.50
1987	14.40	13.90											

Source: Economic Research Service, U.S.D.A. T.453

Palm Oil

Palm oil, by volume, is the second most important vegetable oil produced in the world. The USDA projected 1987/88 world production at 8.67 million tonnes, 8 percent higher than a year earlier. Larger Malaysian supplies accounted for most of the gain. World output continued to increase, despite the fact that prices have trended lower since early 1984. Malaysia remained the major producer, with output estimated at 5 million tonnes or 58 percent of the world total. Indonesia was second.

World consumption of palm oil was projected to reach 8.5 million tonnes or 7 percent more than the previous season. The increase in use largely mirrored the industry's rise. Of total world vegetable and marine oil use of 51 million tonnes, palm oil accounted for 17 percent. In 1983/84, palm oil comprised 14 percent of world use. While most palm oil is consumed in Asian countries, use is increasing in the USSR and Eastern Europe. The U.S. has imported low-priced palm oil, which is often substituted for higher-priced oils. One significant development has been a sharp increase in palm oil use in China. In 1987/88, China was anticipated to import 375,00 tonnes, compared to 16,000 tonnes in 1982. The Soviet Union was expected to import 250,000 tonnes. The U.S. was likely to import less due to large domestic soy oil stocks.

World exports were projected at 5.6 million tonnes, up 10 percent from the previous season. Malaysia was the largest exporter with 1987/88 shipments of 4.35 million tonnes, 10 percent above a year earlier. Malaysia's proximity to markets like India, Bangladesh and Pakistan gives it a strong trade advantage. The USDA indicated that during recent periods virtually all Malaysian palm oil sales were at a loss. Indonesia, a major exporter, has been consuming more oil domestically. In some months, Indonesia has gone from a net exporter to an importer. This could imply an even more dominant market position for Malaysia.

With usage and production in fairly close balance, world stocks of palm oil were pegged at 1.59 million tonnes, virtually the same as the previous year.

World Palm Oil Statistics In Thousand Metric Tons

Crop Year	Production									Exports							
	Malaysia	Colombia	China	Indonesia	Ivory Coast	Papua N. Guin.	Zaire	Nigeria	World Total	Malaysia	Indonesia	Ivory Coast	E.C.-10	Singapore	Zaire	Papua N. Guin.	World Total
1982	3,179	87	112	884	160	80	175	525	5,910	2,864	260	68	94	502	5	77	3,680
1983–4	3,324	104	115	983	162	85	159	530	6,290	2,813	346	58	139	420		80	3,540
1984–5	3,817	118	110	1,055	167	110	157	540	6,890	3,240	128	56	132	763		105	4,420
1985–6	4,773	120	110	1,148	165	120	160	550	8,130	4,065	120	53	138	400		115	5,340
1986–7[1]	4,557	131	110						8,030	3,977							5,150
1987–8[2]	5,000		110						8,670	4,350							5,640

[1] Preliminary. [2] Projected. *Source: Economic Research Service, U.S.D.A.* T.457

Palm Oil—U.S. Supply & Distribution In Millions of Pounds

Year Begin. Oct.	Supply			Utilization								Prices		
				Food Uses										
	Imports	Stocks Oct. 1	Total Supply	Shortening	Margarine	Salad or Cooking Oil	Other	Total	Non–Food Uses	Total Disappearance	Exports (& Shipments)	Palm Kernel Oil ¢ Per Pound	U.S. Ports C.I.F. ¢ Lb	Malaysia[2] U.S. $ Metric Ton
1982–3	282	47	329	206				254		286	4		20.8	406
1983–4[1]	413	69	482	215				272		402	29		24.6	767
1984–5[1]	373	51	424	226				287		370	0		34.1	569
1985–6[1]	610	53	663	304				270		590	0		27.2	274
1986–7[3]	496	33	529	300				364		518	0		14.4	310
1987–8[3]	495	23	518							495	0			328

[1] Preliminary. [2] Malaysia FOB; RBD. [3] Estimate. *Source: Economic Research Service, U.S.D.A.* T.458

Average Wholesale Palm Oil Prices, CIF, Bulk, U.S. Ports In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	N.A.	N.A.	24.0	23.7	24.4	22.3	18.9	18.6	19.3	18.0	19.0	20.0	20.8
1983	19.5	19.0	18.8	19.8	20.7	19.5	20.6	26.2	30.6	31.1	32.0	37.5	24.6
1984	40.5	38.2	36.6	37.0	43.0	36.3	28.2	28.4	30.3	28.3	32.4	29.8	34.1
1985	28.3	29.0	29.5	34.3	34.6	31.6	28.7	25.1	23.5	21.7	19.9	19.7	27.2
1986	18.4	15.6	13.3	14.3	14.1	14.1	13.2	12.1	11.7	14.6	16.1	15.3	14.4
1987	17.0	17.6	16.9	17.0	16.9	17.1	16.0	16.1	17.2				

Source: Economic Research Service, U.S.D.A. T.459

Paper

The U.S. paper industry headed for a record year in 1987, spurred by the dollar's weakness and the concomitant surge in exports. Improvement in the U.S. trade balance meant increased demand for packaging items like corrugated boxes and linerboard. Paper stock exports were 14.6 percent higher in the first quarter of 1987 than in the same 1986 period. Pulp substitute exports for the same period climbed 23 percent over first-quarter 1986. Corrugated exports for January-March 1987 were 14 percent higher. News grade exports were up 5 percent. Consumer spending in the paper market was expected to be strong. Inventories were low, and rebuilding by major industries produced greater demand for folding cartons and corrugated containers.

Shipments of market pulp were expected to increase in 1988 by about 2 percent. Domestic pulp producers, however, were expected to struggle to maintain their share of the domestic and international markets, as many low-cost foreign producers continued to improve their pulp-making technology. These include Brazil, Spain, and South Africa. The U.S. will try to increase its market share in fiber-poor countries, including Japan, South Korea, Taiwan, and Mexico.

Supply/demand factors favored continued growth for U.S. paper and board mills in 1988. However, as long as petrochemical prices remain relatively low, plastics could cut in to the kraft bag and sack market. Nevertheless, the industry was likely to expand its marketing efforts, and the growing computer paper market was a target. Paper industry development and modernization efforts in Brazil and Scandinavia were expected to challenge U.S. dominance in this market, but ongoing U.S. industry efforts to upgrade its capital stock and the recent consolidations were expected to enhance the U.S. industry's competitiveness.

Shipments of (Paper Products) Shipping Containers[1] In Millions of Square Feet Surface Area

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	21,889	21,903	23,777	22,111	23,082	22,489	21,257	23,759	21,605	24,852	21,103	19,496	267,547
1985[2]	23,127	20,337	21,708	22,582	22,345	21,545	22,025	23,441	22,037	25,515	20,726	19,594	267,453
1986[2]	24,075	21,306	22,567	25,174	23,340	23,495	23,976	23,726	24,491	27,256	21,406	22,030	283,621
1987[2]	24,708	22,704	24,755	25,591	23,637	25,620	25,341	24,977	25,925	27,647			

[1] Corrugated & solid fiber. [2] Preliminary *Source: National Paperboard Association* T.463

Index Price of Coated Printing Paper, No. 3 (Dec. 1973 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1984	213.3	220.3	220.9	223.2	223.2	224.2	224.8	224.8	224.8	224.8	233.6	233.6	224.3
1985	234.2	234.6	234.6	234.6	234.6	234.6	234.6	234.6	234.6	234.6	234.6	234.2	234.5
1986	234.2	233.8	233.8	233.8	233.8	233.2	233.2	233.2	233.2	233.8	234.8	235.2	233.8
1987[1]	235.5	235.5	236.0	234.6	234.4	234.4	234.4	235.1	235.5	240.9			

[1] Preliminary *Source: Bureau of Labor Statistics* (0913–0113) T.470

Salient Statistics of Newsprint in the United States and Canada In Thousands of Metric[3] Tons

Year	United States													Canada		
			Imports[3] By Countries of Origin									Stocks, Dec. 31				
	Production	Exports	Canada	Finland	Italy	Norway	Sweden	U.K.	South Africa	Total	Consumption	At Mills	At Publishers[2]	Production	Exports	Stocks At Mills
1983	4,688	265	6,845	17		33	21			6,919	10,587	99	790	8,486	7,470	303
1984	5,025	258	7,688	31		63	86			7,899	11,431	60	874	9,013	8,133	298
1985	4,924	279	6,674	42	23	71	119	17	34	7,708	11,587	57	910	8,988	7,964	290
1986[1]	5,108	337	6,735	24	1	80	135	11	39	7,790	11,936	49	849	9,289	8,181	277

[1] Preliminary. [2] Reporting only to A.N.P.A.; group represents about 75%. [3] Data for imports are in thousands of short tons.
Source: Newsprint Service Bureau, A.P.I. T.464

Average Price of Newsprint Rolls (Index: 1967 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1983	299.1	299.1	299.1	299.1	299.1	299.1	295.0	305.8	310.4	310.4	309.6	309.6	303.0
1984	309.6	309.6	316.0	314.8	314.8	314.8	334.5	331.2	331.2	332.5	334.9	333.2	323.1
1985	334.3	332.4	332.4	332.6	332.9	333.7	333.0	334.9	333.9	329.3	329.8	330.2	332.5
1986	324.1	324.5	324.3	324.1	324.1	323.1	323.5	322.2	322.3	333.6	333.8	333.6	326.1
1987[1]	340.5	342.8	342.2	342.7	343.1	343.1	355.8	367.1	369.2	368.4			

[1] Preliminary *Source: Bureau of Labor Statistics* (0913–0291) T.468

PAPER

U.S. Production & Consumption & Foreign Trade of Woodpulp In Thous. of Short Tons[6]

	Woodpulp Production	Sulfate						Consumption in the Manufacture of Paper and Board			All Grades Woodpulp		Inventories—Dec. 31		Woodpulp	
Year	Dissolving Pulp	Bleached	Paper Grades[2]	Unbleached	Groundwood	Semi-Chemical	Total Wood Pulp	Wood Pulp[4]	Waste Paper[5]	Pulpwood[6]	Exports	Imports	Pulp-Wood	Waste Paper	At Pulp Mills	At Paper & Board Mills
1982	1,093	—	39,478	—	5,063	3,700	49,333		13,565	79,039	3,395	3,894	5,426	1,017	614	492
1983	1,261	—	42,358	—	5,067	3,851	52,537		14,696	85,442	3,674	4,093	5,229	923	554	550
1984	1,206	—	44,690	—	5,506	4,069	55,470		15,926	87,646	3,694	4,490	5,574	1,025	759	484
1985	1,174	—	43,696	—	5,251	4,027	54,147		15,623	85,744	3,794	4,466	5,046	969	650	503
1986[1]	1,258	—	46,081	—	5,487	4,191	57,017		16,670	91,434	4,308	4,340	4,794	832	458	569

[1] Preliminary. [2] Chemical pulp. [3] Or exploded. [4] Does not include wood pulp consumption by plants classified outside paper & board industries. [5] Waste paper; straw; rags; cotton fibre; manila stock; etc. [6] Data for pulpwood expressed in thousands of cords of 128 cu. ft.—roughwood basis. Pulpwood includes slabs, chips, & millwaste. *Sources: Bureau of the Census; American Paper Institute.* T.465

Paper and Board Production in the United States In Thousands of Short Tons

	Paper							Paperboard				Construction[3]		
Year	Newsprint[5]	Coated (Shipments)	Tissue Paper	Uncoated Free Sheet (Shipments)	Coarse[2]	Packaging & Industrial Converting[4] (Shipments)	All Paper Total	Other Bleached Paperboard	Corrugating Material	Unbleac Kraft	All Paperboard Total	Construction (Paper)	All Construction Total	Total All Types
1981	4,752	4,940	4,518	8,234	5,700	3,880	31,030	1,900	6,000	14,800	31,232	1,200	3,847	66,440
1982	4,574	4,974	4,438	8,184		3,688	30,422				29,065			
1983	4,688	5,716	4,789	9,060		3,666	32,823				32,177			
1984	5,025	6,281	4,921	9,474	6,249	3,666	34,411				34,039			
1985	4,924	5,875	4,941	9,952	5,875	3,403	33,996				33,034			
1986[1]	5,108	6,263	5,095	10,657		3,303	35,443				35,419			

[1] Preliminary. [2] Shipments. [3] Paper & board. [4] Unbleached kraft. *Source: Bureau of the Census* T.467

Index Price of Wood Pulp, Bleached Sulphate Softwood 1967 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept	Oct	Nov	Dec.	Average
1983	333.7	330.7	322.3	319.2	321.4	323.2	328.5	331.4	333.3	342.4	353.3	351.2	332.5
1984	354.8	385.0	387.8	417.8	439.2	440.2	439.1	437.3	434.3	431.1	423.4	404.5	416.2
1985	385.4	366.0	352.1	337.6	331.8	330.7	332.2	328.9	323.3	320.7	317.2	316.3	336.8
1986	318.2	321.1	318.8	345.0	354.6	363.1	386.5	385.6	393.4	398.9	410.7	416.5	367.7
1987	429.5	437.6	443.5	459.2	466.2	465.3	467.0	467.2	490.3	493.0			

Source: Bureau of Labor Statistics (0911–0211) T.469

Index Price of Shipping Sack Paper[1] Dec. 1973 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept	Oct	Nov	Dec.	Average
1981	203.2	213.0	217.4	221.2	224.5	224.5	224.5	224.5	224.5	224.5	223.4	219.5	220.4
1982	219.5	222.2	220.7	220.7	216.3	207.2	207.2	207.2	207.2	213.9	213.9	213.9	214.2
1983	220.7	222.9	222.9	N.A.	222.9	226.7	226.7	226.7	230.7	230.7	231.8	231.8	226.8
1984	231.8	238.8	247.2	247.2	247.8	247.8	241.1	241.1	241.1	241.1	241.1	233.0	240.3
1985	233.0	233.0	225.7	223.9	227.5	222.7	211.0	211.0	211.0	211.0	211.0	211.0	219.3
1986	211.0	211.0	211.0	218.0	218.0	218.0	218.0	218.0	218.0	226.8	234.9	234.0	219.7
1987[2]	235.7	242.4	244.2	251.3	251.3	251.3	251.3	251.3	257.9	260.6			

[1] Unbleached kraft. [2] Preliminary. *Source: Bureau of Labor Statistics* (0913–0304) T.471

Index Price of Paperboard 1967 = 100

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept	Oct.	Nov	Dec.	Average
1985	287.2	285.9	285.7	284.2	280.4	273.7	267.8	265.8	266.0	265.8	266.4	266.7	274.6
1986	264.6	265.7	267.0	267.6	269.0	268.5	272.2	274.9	274.9	276.2	278.1	280.8	271.6
1987	290.4	294.4	294.5	296.2	295.2	295.4	296.3	300.7	308.5	310.8			

Source: Bureau of Labor Statistics (0914)

Peanuts and Peanut Oil

World peanut production in 1987/88 was projected by USDA at 19.62 million tonnes, 3 percent less than the previous season. The primary reason for the decline was a severe drought in India, which reduced the crop by 1.5 million tonnes to 4.35 million. This was expected to lead to significant imports of substitute oils like palm and soyoil. Somewhat offsetting India's drop was a 14-percent increase in the Chinese peanut crop to 6.7 million tonnes. China was the world's largest producer, while India had been the previous season. There were few other changes among the major producers. Output in Senegal dropped by 11 percent to 750,000 tonnes, due to lower yields. Overall, world acreage fell by 6 percent, while the average yield rose 3 percent.

The 1987/88 peanut crush was projected at 9.83 million tonnes, down 7 percent from a year earlier. This was expected to result in peanut meal output of 3.95 million tonnes, compared to 4.27 million a year earlier. World peanut oil production was projected to fall by 8 percent to 2.76 million tonnes.

The USDA estimated 1987/88 world peanut exports at 1.27 million tonnes, compared to 1.29 million a year earlier. Peanut meal exports were put at 510,000 tonnes, compared to 630,000 the previous season. Peanut oil shipments were put at 310,000 tonnes, compared to 330,000 tonnes a year earlier. World ending stocks of peanuts were projected to fall sharply to 470,000 tonnes, 18 percent less than in 1986/87.

The 1987/88 U.S. peanut crop was estimated at 3.7 billion pounds, virtually the same as the previous season. Harvested acreage of over 1.5 million was down slightly from 1986. Harvested area in the Southeast fell 4 percent, while acreage in the Southwest rose by about 6 percent. The national average yield of over 2,400 pounds per acre was slightly above a year earlier. Carryout from the previous year's crop was about a billion pounds, up 19 percent. The total peanut supply was expected to be about 3 percent larger than a year before.

The domestic crush in 1987/88 was forecast to increase about 10 percent from the previous season's low level. This active rate of crush was expected to result in peanut meal production of about 115,000 tons, compared to 108,000 in 1986/87. Peanut oil output was placed at 230 million pounds, or sharply above a year earlier. The U.S. is the fifth largest producer of peanut oil, after India, China, Burma, and Senegal.

The U.S. is the leading exporter of peanuts. In 1987/88, U.S. exports were projected at 700 million pounds, up about 6 percent from the previous season. The trend in peanut exports has been higher, with a recent peak of over one billion pounds in 1985. U.S. exports comprise 30 percent of world peanut trade, compared to 20 percent in 1980/81. Traditional buyers of U.S. peanuts have been Canada, Japan, the Netherlands, West Germany, Italy, and Spain. USDA has indicated that Indonesia could represent an important new market. In Indonesia, which traditionally uses peanuts for food, the population is growing, and consumption outstrips production.

U.S. food use of peanuts was projected to increase by about 3 percent to 2.130 billion pounds. Peanut prices at the farm level were expected to be about 2 cents per pound lower than a year earlier, and this was likely to boost consumption.

The primary product made from shelled edible grade peanuts is peanut butter. For the 1986/87 season, peanut butter accounted for 47 percent of use, while salted peanuts took 26 percent of the total, and candy 22 percent.

The USDA projected U.S. ending stocks of peanuts at 850 million pounds, down 15 percent from the year before. But stocks remained relatively large, with the U.S. holding 66 percent of the world's inventories.

During October-December 1986, world prices averaged $1,294/tonne, and were some of the highest since 1980/81. In 1987, prices declined, and averaged $584/tonne for the July-September period.

U.S. Government Program

The USDA indicated that the 1988 peanut crop would have a national poundage quota of 1.402 million short tons, or 2.804 billion pounds. This is 46,700 tons above the 1987 quota. The national support price for quota peanuts was set at $615.27/short ton. The support price for additional peanuts was unchanged at $149.75/ton.

World Production of Peanuts (in the Shell) In Thousands of Metric Tons

Crop Year	Argentina	Brazil	Burma	China (mainland)	India	Indonesia	Mali	Nigeria	South Africa	Senegal	Sudan	Taiwan	Thailand	United States	Zaire (Congo)	World Total
1978–9	672	465	384	2,377	6,208	708	107	341	179	1,053	815	92	102	1,793	295	17,832
1979–0	337	545	337	2,822	5,768	783	57	377	348	673	852	86	122	1,800	295	17,339
1980–1	243	310	431	3,600	5,005	791	92	560	309	521	707	82	130	1,045	320	16,301
1981–2	270	305	564	3,826	7,223	728	80	610	116	878	740	83	146	1,806	310	20,014
1982–3	250	250	541	3,916	5,282	795	80	580	89	1,109	497	63	145	1,560	310	17,619
1983–4	329	220	523	3,951	7,086	747	90	400	72	568	413	98	147	1,495	310	18,840
1984–5	270	337	661	4,815	6,436	755	90	500	196	560	390	87	130	1,998	310	19,810
1985–6	310	218	700	6,664	5,547	765		600	111	590	345	88	155	1,870		20,410
1986–7[1]	370	200	725	5,880	5,900	770			130	840	400			1,680		20,280
1987–8[2]	360	160	725	6,400	4,350	775			140	750	400			1,620		19,270

[1] Preliminary. [2] Estimated. *Source: Foreign Agricultural Service, U.S.D.A.* T.474

PEANUTS AND PEANUT OIL

Salient Statistics of Peanuts in the United States

Crop Year	Acreage Planted (1,000 Acres)	Acreage Harvested For Nuts (1,000 Acres)	Average Yield Per Acre In Lbs.	Production Picked and Threshed 1,000 Lbs.	Season Farm Price ¢ Lb.	Farm Value Million Dollars	Thousand Pounds (Yr. Beg. Aug.) Exports Unshelled	Exports Shelled	Imports Unshelled	Imports Shelled
1974–5	1,520	1,472	2,491	3,667,604	17.9	657,987	17,703	548,083	127	466
1975–6	1,532	1,500	2,564	3,846,722	19.6	754,491	22,708	318,229	207	290
1976–7	1,549	1,518	2,464	3,739,190	20.0	746,675	24,765	580,496	432	66
1977–8	1,545	1,512	2,456	3,715,055	21.0	780,869	64,284	705,032	413	148
1978–9	1,541	1,509	2,619	3,952,384	21.1	833,885	94,612	713,701	413	139
1979–0	1,546	1,520	2,611	3,968,485	20.6	819,276	64,810	762,304	424	140
1980–1	1,521	1,400	1,645	2,302,762	25.1	578,635	33,071	353,677	3,597	3,710
1981–2	1,514	1,489	2,675	3,981,850	26.9	1,069,526	77,803	375,029	6	4,632
1982–3	1,311	1,277	2,693	3,440,255	25.1	862,686	51,321	473,406	846	1,323
1983–4	1,411	1,374	2,399	3,295,530	24.7	814,579	39,509	529,944	298	1,715
1984–5	1,563	1,531	2,878	4,405,745	27.9	1,230,720	72,908	623,139	82	2,167
1985–6	1,490	1,467	2,810	4,122,787	24.4	1,006,000				
1986–7[1]	1,573	1,537	2,407	3,700,745	28.7	1,062,000				
1987–8[2]	1,527	1,517	2,359	3,579,300	26.1	934,000				

[1] Preliminary. [2] Estimate. *Source: Economic Research Service, U.S.D.A.* T.475

Peanuts Supply & Disposition (Farmers' Stock Basis) & Support Program in the United States

Crop Year Begin. Aug. 1	Supply: Production[3]	Supply: Imports	Supply: Stocks Aug. 1	Supply: Total	Disposition: Exports & Shipments	Disposition: Crushed for Oil	Disposition: Seed, Loss & Residual	Food Use: Military	Food Use: Civilian	Total Disappear.	Government Support Program: Support Price ¢ per lb.	Additional ¢ per lb.	Amount Put under Support Quantity Mil. Lbs.	Amount Put under Support % of Prod.	Owned by CCC July 31 Mi. Lbs.
	Million Pounds														
1975–6	3,847	1	1,146	4,993	434	1,447	313	—	1,740	3,934	19.70		1,136	29.5	958
1976–7	3,739	1	1,060	4,800	783	1,108	666	—	1,635	4,192	20.70		854	22.8	0
1977–8	3,715	1	608	4,324	1,025	487	556	—	1,675	3,743	21.50		535	14.4	2
1978–9	3,952	1	581	4,534	1,141	527	521	—	1,759	3,948	21.00	12.5	515	12.9	—
1979–0	3,968	1	586	4,555	1,057	571	522	—	1,777	3,927	21.00	15.0	709	17.9	—
1980–1	2,303	401	628	3,332	503	446	505	—	1,465	2,919	22.75	12.5	337	14.6	—
1981–2	3,982	2	413	4,397	576	573	795	—	1,696	3,640	22.75	12.5	835	20.9	2
1982–3	3,440	2	757	4,199	681	342	463	—	1,849	3,335	27.50	10.0	539	15.7	—
1983–4	3,296	2	864	4,162	744	387	564	—	1,856	3,551	27.50	9.3	367	11.1	—
1984–5	4,406	2	611	5,019	860	625	199	—	1,911	3,595	27.50	9.3	1,370	30.9	—
1985–6	4,123	2	1,424	5,549	1,043	812	826	—	2,023	4,704	27.95	7.4	1,151	27.8	—
1986–7[1]	3,701	2	845	4,548	663	514	295	—	2,045	3,545	30.37	7.5			
1987–8[2]	3,579	2	1,003	4,584	700	563	461	—	2,100	3,853	30.37	7.5			

[1] Preliminary. [2] Estimate. [3] Production is on a net weight basis. *Source: Economic Research Service, U.S.D.A.* T.476

U.S. Production of Peanuts (Harvested for Nuts) by States In Millions of Pounds

Crop Year	Alabama	Arkansas	Florida	Georgia	Louisiana	Mississippi	New Mexico	No. Car.	Oklahoma	So. Car.	Tennessee	Texas	Virginia	U.S. Total
1974	474.4	—	170.5	1,661.5	—	6.0	13.0	384.3	217.7	31.0	—	413.3	295.9	3,668
1975	535.6	—	177.7	1,726.6	—	13.5	20.2	373.7	232.3	29.5	—	463.6	284.6	3,847
1976	513.6	—	165.0	1,554.3	—	12.3	21.7	440.7	246.0	24.6	—	463.6	309.0	3,739
1977	589.1	—	170.5	1,499.1	—	11.6	25.4	444.1	267.6	31.2	—	394.5	293.0	3,715
1978	551.8	—	182.1	1,725.3	—	13.1	24.1	465.4	207.0	35.7	—	436.5	311.6	3,952
1979	584.9	—	179.9	1,704.8	—	12.4	25.3	378.5	264.0	32.3	—	533.0	253.5	3,968
1980	265.0	—	143.0	994.6	—	7.5	22.4	291.3	140.2	14.3	—	293.3	129.8	2,303
1981	602.7	—	178.0	1,655.5	—	12.7	24.9	555.6	189.3	39.0	—	393.3	330.8	3,982
1982	522.2	—	153.0	1,517.5	—	—	25.2	417.2	174.6	30.0	—	325.1	275.5	3,440
1983	454.5	—	166.8	1,568.0	—	—	25.6	318.3	176.5	25.0	—	362.3	198.6	3,296
1984	648.6	—	246.4	2,160.0	—	—	32.2	449.5	189.0	39.2	—	371.3	269.7	4,406
1985	590.0	—	216.0	1,921.3	—	—	32.0	452.0	171.0	34.2	—	422.6	283.7	4,123
1986	494.9	—	233.2	1,632.6	—	—	28.7	440.4	184.5	25.5	—	385.0	275.9	3,701
1987[1]	479.6	—	228.8	1,550.0	—	—	33.8	392.2	213.9	33.6	—	423.0	224.4	3,579

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.477

Disappearance and Reported Uses of Peanuts and Products in the U.S. In Millions of Pounds

	Apparent Disappear.[2] (Milled Peanut Prod.)						Reported Used (Shelled Peanuts—Raw Basis)								
	Shelled Peanuts						Edible Grades Used in								
								Peanut							
Year Begin. Aug. 1	Edible Grades	Oil Stock[3]	Total All Grades	Cleaned (In Shell)	Crude Peanut Oil[4]	Cake & Meal[4]	Candy	Salted	Sandwich Spread	Butter[5]	Other Products	Roasting Stocks	Total	Oil Stock Crushed For Oil, Cake & Meal	Total All Grades
1976–7	1,700	783.2	2,483	163.2	342.9	460.7	235.0	253.8	24.2	617.9	17.8	138.8	1,149	833.2	1,982
1977–8	1,895	461.2	2,356	190.6	179.1	208.9	235.2	274.2	28.2	623.8	18.7	127.7	1,180	366.2	1,546
1978–9	1,955	426.9	2,382	210.9	161.6	227.9	268.4	291.6	28.1	664.9	19.1	116.7	1,272	396.0	1,668
1979–0	1,979	503.9	2,483	201.4	175.3	228.4	258.4	284.9	30.3	700.0	19.3	137.1	1,293	429.1	1,722
1980–1	1,097	306.0	1,403	120.3	143.5	189.6	237.9	205.5	24.1	588.6	19.7	90.8	1,076	335.5	1,411
1981–2	1,096	377.6	2,283	200.7	155.7	233.7	255.9	278.0	22.7	653.7	15.3	122.7	1,226	431.5	1,657
1982–3				206.4		145.5	284.2	308.1	21.9	677.6	17.0	156.0	1,464	256.4	
1983–4[1]				173.0		149.9	298.1	302.0	24.3	671.4	15.5	133.8	1,441	291.1	
1984–5[1]				211.9			290.0	309.0	26.0	697.0	19.0	139.1	1,342	470.3	
1985–6[1]							314.0	359.0	25.0	701.0	24.0		1,422		
							321.0	384.0	34.0	679.0	41.0		1,460		

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[1] Preliminary. [2] Includes in transit, exports and domestic use, except for oil stock for which disappearance is assumed to equal crushings. [3] Graded & ungraded oil stock only. [4] Relates to peanut oil mills only. [5] Peanuts used in peanut butter by mfrs. for own use in candy is included under peanut candy. *Source: Statistical Reporting Service, U.S.D.A.* T.481

World Imports of Peanut Oil (Crude & Refined) into Specified Countries In Thousands of Metric Tons

Crop Year	Algeria	Australia	Austria	Belgium-Lux.	Venezuela	Canada	Dominican Rep.	France	West Germany	Hong Kong	Italy	Singapore	Netherlands	Switzerland	Portugal	United Kingdom	Total
1977	5	4	2	29	64	7	15	217	37	23	31	2	8	—	—	16	
1978–9	—	1	2	35	66	6	2	221	40	25	46	2	21	20	—	15	454
1979–0	—	2	2	42	1	5	—	247	39	29	42	2	34	20	—	17	490
1980–1	—	—	3	33	—	5	—	161	26	28	20	3	23	10	—	12	330
1981–2		1		44		4		194	27	26	34		21	15		15	389
1982–3		2		57		4		223	25	28	38		24	12		17	451
1983–4		0		42		4		154	22	25	31		20	10		10	343
1984–5		3		42		3		122	21	32	37		12	10		10	313
1985–6[1]				42				121	17	31	37		9	10		12	296
1986–7[2]				50				105	16	30	40		5	10		10	282
1987–8[2]				46				95	15	30	40		5	10		10	268

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.482

Production, Consumption, Stocks and Foreign Trade of Peanut Oil in the U.S. In Millions of Pounds

	Production		Consumption		Stocks—Dec. 31			Exports	
Year	Crude	Refined	In Refining	In End pdt's.	Crude	Refined	Imports for Consumption	Crude	Refined
1977	252.0	249.7	257.2	243.9	91.5	7.6	—	71.8	9.7
1978	145.2	171.9	178.0	169.0	7.3	4.7	—	32.9	7.6
1979	183.0	130.1	134.3	120.4	22.6	7.3		14.4	1.2
1980	182.4	170.6	166.7	165.3	7.5	4.3		46.0	1.6
1981	141.6	122.8	133.5	115.3	12.9	5.2		38.1	2.7
1982[1]	N.A.	148.0	162.1	150.2	N.A.	4.5		45.5	.6
1983[1]	N.A.	165.0	178.5	169.4	N.A.	2.9		67.4	.4
1984[1]	108.2	136.4	144.6	131.9	11.1	3.3			
1985[1]	146.7	119.3	125.2	N.A.	17.1	3.5			
1986[1]	181.9	146.6	152.8	141.1	49.4	2.1			

[1] Preliminary. *Source: Bureau of Census* T.483

PEANUTS AND PEANUT OIL

Utilization of Peanut Oil in the United States In Thousands of Pounds

Year Begin. Aug.	Shortening	Margarine	Cooking and Salad Oils	Other Edible	Total Food Uses	Non-Food Uses	Factory Consumption	Foots & Loss	Domestic Disap-pearance
1977–8	20,000	—	211,000	−47,000	183,000	11,000		8,000	194,000
1978–9	16,000		96,000						120,000
1979–0[1]			148,000						193,000
1980–1[2]			100,000						150,000
1981–2[2]			136,000		139,000				
1982–3[2]			157,000		174,000				
1983–4[2]			119,000		131.000				
1984–5[2]			110,000		118,405				
1985–6[2]			136,000		137,383				

[1] Preliminary. [2] Estimate. *Source: Bureau of the Census* T.484

Average Price Received by Producers in U.S. for Peanuts in the Shell In Cents Per Pound

Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Average[1]
1977–8	20.9	20.9	20.4	20.4	21.0	—	—	—	—	—	—	21.2	21.0
1978–9	20.8	21.4	21.0	20.8	21.2	—	—	—	—	—	—	21.2	21.1
1979–0	21.4	20.3	20.4	20.4	20.4	—	—	—	—	—	—	—	20.6
1980–1	22.5	23.2	27.9	37.3	47.7	—	—	—	—	—	—	—	25.1
1981–2	28.9	26.7	25.1	25.8	24.9	—	—	—	—	—	—	25.7	26.9
1982–3	25.1	24.9	25.3	26.1	22.9	—	—	—	—	—	—	27.1	25.1
1983–4	25.2	24.3	24.5	25.4	27.1	—	—	—	—	—	—	27.3	24.1
1984–5	27.6	25.6	25.4	24.4	24.1	—	—	—	—	—	—	22.1	24.8
1985–6[2]	22.5	23.3	23.6	24.1	22.4	19.8	—	—	—	—	—	29.6	23.6
1986–7[2]	26.1	27.7	30.9	30.5	17.7	—	—	—	—	—	—	29.7	27.1
1987–8[2]	27.8	26.8	26.7	27.9									

[1] Weighted average by sales. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.479

Crude Peanut Oil Produced[2] in the United States In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	9.7	9.2	11.1	18.0	18.1	18.1	10.4	16.6	7.7	10.3	6.3	9.5	145.2
1979	11.7	14.2	22.5	18.6	23.0	15.5	8.2	10.8	4.5	4.5	6.1	7.7	183.0
1980	6.2	15.1	16.7	25.9	30.7	22.9	23.5	21.2	5.9	2.1	6.3	5.9	182.4
1981	6.1	6.0	10.5	17.3	19.1	19.5	13.6	9.8	5.3	9.7	12.0	12.7	141.6
1982	11.3	11.1	19.4	26.3	22.3	19.0	15.0	11.8	N.A.	N.A.	N.A.	N.A.	N.A.
1983	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1984	12.1	13.3	10.8	12.5	10.1	8.9	5.1	5.3	4.3	9.9	8.6	7.3	108.2
1985	9.8	13.9	15.8	15.5	14.5	12.4	10.4	10.0	10.1	9.2	10.2	14.9	146.7
1986	19.2	21.1	19.9	20.8	24.0	26.4	14.2	9.6	N.A.	4.1	11.9	10.7	181.9
1987[1]	9.8	13.6	20.5	11.6	17.8	15.8	14.5	9.7	4.2	7.5			

[1] Preliminary. [2] Not seasonally adjusted. *Source: Statistical Reporting Service, U.S.D.A.* T.473

Average Price of Domestic Crude Peanut Oil (in Tanks) F.O.B. Southeast Mills In Cents Per Pound

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
1978–9	45.1	49.7	46.0	51.4	47.4	37.9	40.9	41.2	36.5	39.0	37.0	35.5	42.3
1979–0	34.4	31.1	29.5	25.9	25.8	22.9	20.5	22.4	23.1	26.9	33.2	36.0	27.6
1980–1	35.8	48.7	49.1	47.7	39.3	34.1	34.0	37.1	38.0	38.1	43.2	40.3	40.5
1981–2	34.5	34.5	30.9	27.3	31.4	23.3	29.1	29.9	26.2	24.7	22.7	22.5	28.1
1982–3	22.9	25.2	26.1	25.6	25.7	24.1	25.1	26.4	26.4	26.7	30.7	50.5	28.0
1983–4	50.7	48.8	48.1	47.3	46.5	48.4	52.6	58.2	59.1	57.7	54.8	39.2	47.3
1984–5	36.7	41.2	41.4	39.2	38.8	40.3	49.6	46.2	40.7	39.7	37.6	33.9	40.4
1985–6	38.3	42.2	36.1	29.5	22.6	21.5	24.4	27.6	28.0	27.5	30.5	28.3	29.7
1986–7	27.8	29.8	26.5	25.1	25.0	23.8	24.1	26.2	25.7	25.3	24.6	26.7	25.9

Source: Agricultural Marketing Service, U.S.D.A. T.485

Pepper

In recent years, world consumption of pepper has exceeded production. The yearly deficit has amounted to about 7,000 tonnes. This in turn has resulted in stock drawdowns. The major producers of pepper are Indonesia, India, Brazil, and Malaysia. Singapore is a large importer and re-exporter.

The leading producers have had smaller crops in recent seasons. Drought has had an impact on crops in Asia, particularly India. India was expected to have a late crop in 1987 and to show a significant reduction in its exportable surplus. In Malaysia, producers have switched to more attractive alternative crops like cocoa. In Indonesia, black pepper output was down, but the white pepper crop was larger; the country's exportable surplus was expected to increase.

Production in Brazil has suffered from weather and disease problems. Since plantings take three to four years to reach the most productive stage, pepper requires a large investment of time and capital. In a situation of high inflation, as in Brazil, producers are prone to switch to crops promising immediate returns. Brazil's exportable surplus was expected to decline in 1987.

With smaller crops and steady sales, stocks have been reduced to the point where prices have risen sharply. Using Indonesian Lampong black pepper for comparative purposes, the spot New York price in 1983 was 72 cents/lb. By 1984, it had jumped to 99 cents. In 1985, it averaged 170 cents, and in 1986 it rose to 215 cents. By December 1986 and January 1987, the price was 243 cents.

White pepper prices had also risen substantially by late summer 1987. Many traders had expected production to increase and had viewed prices as high. Those traders who deferred purchases had to buy when supplies were tight. When production failed to rise as expected, supplies were rationed by firmer prices. In time, these higher prices were expected to encourage production.

In early 1986, the U.S. Food and Drug Administration "blocklisted" Indian pepper; all shipments were detained for inspection at U.S. ports due to the presence of a pesticide. That directive has been lifted.

World Exports of Pepper (Black & White) and Prices

	Exports (metric tons)							New York Spot Prices (¢ per pound)					
								Indonesian		Brazilian		Indian	
Year	Brazil	India	Indonesia	Singapore[2]	Madagascar	Sarawak	Sri Lanka	Lampong Black	Muntok White	Black	White	Malabar Black	Tellicherry[3]
1974	15,491	28,569	15,188		2,241	28,933	337						
1975	17,944	24,399	14,525		3,461	29,815	96						
1976	19,986	17,813	29,481		2,958	34,850	10						
1977	17,099	25,892	30,856		3,748	26,795	635						
1978	29,505	19,370	37,090	40,904	1,566	30,780	1,205						
1979	25,186	20,545	24,986	38,395	1,894	36,118	876	93.7	132.6	91.9	129.7	93.9	112.2
1980	31,964	26,795	29,345	33,233	1,674	30,709	945	87.6	120.9	83.3	116.3	87.6	102.5
1981	46,895	18,636	33,996	30,098	1,440	28,696	2,042	68.8	101.5	62.3	100.0	80.4	103.8
1982	44,539	20,454	36,327	26,459	1,796	25,010	1,238	66.3	84.8	62.1	84.7	69.2	83.7
1983	30,363	27,982	45,061	N.A.	2,801	23,481	1,120	72.1	96.7	65.5	96.2	76.0	86.5
1984[1]	36,499	21,000	33,817		2,804	16,502	2,202	98.6	153.9	96.5	152.8	98.9	115.2
1985[1]								169.6	190.6	167.4	190.4	169.6	185.3

[1] Preliminary. [2] Reexports. *Source: Foreign Agricultural Service, U.S.D.A.*

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United States Imports of Pepper from Specified Countries In Metric Tons

	Black Pepper										White Pepper						
Year	Brazil	Mexico	Sri Lanka (Ceylon)	Spain	India	Indonesia	Malaysia	Singapore	China	Total	Brazil	China	W. Germany	Indonesia	Malaysia	Singapore	Total
1975	6,436		41		6,708	4,613	4,487	773	10	23,156	170	—		1,514	63	59	1,813
1976	6,609		—		359	11,774	4,037	1,321	3	24,128	53	—		2,118	56	128	2,362
1977	5,282		157		4,890	9,466	3,140	478	—	23,540	40			2,765	42	63	2,920
1978	10,472		186		1,880	10,595	2,293	604	6	26,142	285	—		1,994	64	28	2,382
1979	9,704		281	—	627	10,898	2,644	156	61	24,482	414	10	—	2,159	51	94	2,756
1980	10,075	131	3,194														
1981	14,716	75	2,503														
1982	14,887	10	172	—	848	11,620	172	63	3	27,811	423	1	5	2,194	—	95	2,721
1983	13,047	—	256	—	2,498	12,327	25	120	3	28,346	571	17	6	2,460	—	65	3,130
1984	10,369	3	158	34	4,024	9,814	131	322	378	27,421	246	260	10	3,805	100	100	4,762
1985[1]	12,227	3	158	34	4,024	9,814	131	322	378	27,421	246	260	10	3,805	100	100	4,762
1986																	

[1] Preliminary. *Source: Foreign Agricultural Service, U.S.D.A.*

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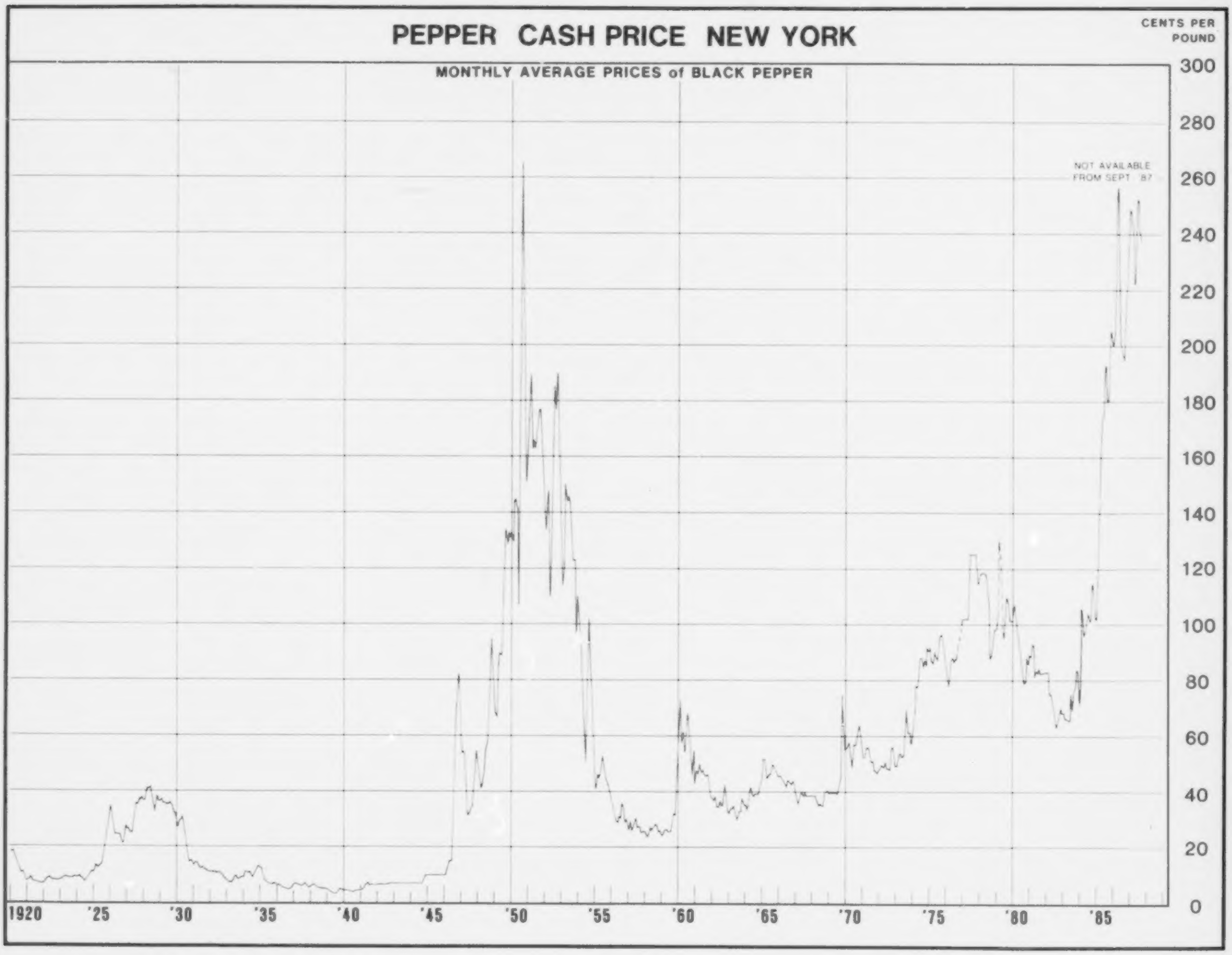


PEPPER CASH PRICE NEW YORK

Average Black Pepper Prices in New York In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1973	49.3	52.0	54.0	53.0	52.5	53.0	65.0	70.0	61.0	61.0	57.5	61.0	57.4
1974	64.0	70.0	78.0	78.0	85.0	88.0	88.0	85.0	87.5	85.5	92.0	91.0	82.7
1975	91.5	87.0	86.0	90.0	89.0	87.5	88.5	95.0	97.0	94.0	87.5	85.0	89.8
1976	81.0	79.0	77.5	88.0	88.0	87.0	87.5	87.5	N.A.	N.A.	N.A.	102.0	86.4
1977	102.0	102.0	102.0	102.0	125.0	125.0	125.0	125.0	125.0	125.0	114.5	N.A.	115.7
1978	118.5	118.5	118.5	118.5	117.5	109.0	107.5	88.0	88.5	95.5	98.5	98.5	106.4
1979	105.0	N.A.	130.0	N.A.	N.A.	95.0	97.0	110.0	108.0	108.0	102.0	101.3	106.3
1980	108.0	101.0	96.3	93.0	87.0	84.3	82.8	79.0	79.0	88.0	86.5	89.3	89.5
1981	88.5	93.3	92.0	81.0	83.0	82.3	84.0	82.5	82.3	82.3	82.5	82.5	84.7
1982	82.5	82.5	75.0	75.0	70.0	69.0	67.0	63.0	69.0	70.5	68.5	68.3	71.7
1983	68.3	66.5	66.3	65.5	65.5	65.5	75.0	69.3	76.3	77.3	83.5	83.5	71.9
1984	105.7	102.0	95.7	97.0	100.7	102.0	103.7	101.3	109.0	115.3	107.3	102.3	103.5
1985	114.0	124.3	145.0	173.3	175.7	190.7	192.7	180.0	180.0	193.0	205.0	200.0	172.8
1986	208.0	217.0	257.0	226.0	201.0	199.0	197.0	195.0	210.0	231.0	233.0	249.0	218.6
1987	243.5	235.5	222.0	240.5	253.2	252.2	240.8	234.4	N.A.	N.A.	N.A.		

Source: Bureau of Labor Statistics (0289–0131); N.Y. Wall St. Journal T.488

Petroleum

Global free-market petroleum demand was estimated at 48.5 million barrels per day (bpd) in 1987, approximately 510,000 bpd higher than in 1986, according to the Department of Energy (DOE). Demand was expected to increase by another 640,000 bpd in 1988, with much of that rise occurring in the U.S.

Oil production in non-OPEC market economies was expected to increase by 350,000 bpd in 1988 to about 27.1 million bpd. Production increases in Mexico, the North Sea, and other European oil-producing countries were expected to exceed the total decline of 175,000 bpd from the U.S., Canada, and Australia. At the same time, output by smaller producers (including Colombia and Syria) was forecast to increase by over 310,000 bpd.

OPEC crude oil production was believed to have averaged over 18 million bpd during 1987, in spite of an official ceiling of 16.6 million bpd, because of overproduction by Iran and Iraq, and possibly by other member nations.

Price increases during the summer of 1987, in response to heightened tensions in the Persian Gulf, were not sustained once the U.S. more effectively convoyed U.S.-flagged ships in the region. Originally, the U.S. naval presence in the Gulf was increased to escort 11 reflagged Kuwaiti tankers. Then the U.S. transferred minesweeping helicopters and ships to the region, and was joined by ships from its NATO allies. However, Iranian attacks on neutral tankers continued, as did Iraqi attacks on tankers calling on Iranian ports, without creating any significant disruptions to the oil flow. And the opening of a pipeline from Iraq into Turkey was expected to further diminish the war's effect on world oil supplies.

Saudi Arabia, which had acted as the swing producer during previous periods of overproduction, refused to bear the brunt of cutbacks to support prices. In November 1987, King Fahd made it known that Saudi Arabia opposed raising OPEC prices from the official rate of $18/barrel until at least the end of 1988.

At OPEC's December meeting, the bench mark crude price was left at $18, with Iraq refusing to sign the new agreement. Therefore, Iraq's nominal 1.6 million bpd quota was removed from the total, leaving 15.06 million allocated among the other twelve members. OPEC President Lukman had projected first-half 1988 demand for OPEC oil at 17.5 million bpd. But OPEC was expected to produce 19 million bpd during that period, according to DOE. DOE estimated that OPEC produced 20.6 million bpd during the third quarter of 1987, indicating that OPEC members took advantage of the hoarding caused by Persian Gulf tensions.

U.S. petroleum consumption in 1987 was estimated at 16.52 million bpd, compared with 16.28 million in 1986. For 1988, daily use was forecast at 16.66 million barrels. Total net petroleum imports averaged 5.44 million bpd in 1986, were estimated at 5.80 million in 1987, and were forecast at 6.04 million for 1988. Inventories of both crude oil and products, which rose during the summer of 1987 with crude prices as high as $22/bbl., weighed on the market during the fall. Consumption of heating oil in the Northeast apparently was reduced by a warmer-than-usual November and December.

Petroleum demand is influenced by weather, overall economic conditions, the availability of substitutes and the technological drive to conserve energy. The Reagan Administration's estimate for 1988 real GNP growth of 2.4 percent suggested slow growth in U.S. consumption. Deregulation of the natural gas industry has increased industrial use of that product, particularly at the expense of residual fuel oil shipments to electric utilities. DOE estimated that U.S. residual fuel demand fell 13 percent in 1987. And an additional 5 percent loss, almost entirely due to substitution by utilities, was expected in 1988.

Futures Markets

Futures contracts in crude oil, heating oil, and unleaded gasoline are traded on the New York Mercantile Exchange (NYMEX). Heating oil also is traded on the London Commodity Exchange (where it is called gas oil).

World Production of Crude Petroleum, by Specified Countries In Thousand Barrels Per Day

Year	Algeria	Canada	China	Libya	Iran	Iraq	Kuwait	Nigeria	Mexico	Indonesia	United Kingdom	USSR	Saudi Arabia	United States	Venezuela	World Total
1978	1,161	1,313	2,082	1,983	5,242	2,563	2,131	1,897	1,209	1,635	1,082	10,950	8,301	8,707	2,166	59,871
1979	1,154	1,496	2,122	2,092	3,168	3,477	2,500	2,302	1,461	1,591	1,568	11,187	9,532	8,552	2,356	62,357
1980	1,012	1,435	2,114	1,787	1,662	2,514	1,656	2,055	1,936	1,577	1,622	11,460	9,900	8,597	2,168	59,225
1981	805	1,285	2,012	1,140	1,380	1,000	1,125	1,433	2,313	1,605	1,811	11,552	9,815	8,572	2,102	55,546
1982	710	1,271	2,045	1,150	2,214	1,012	823	1,295	2,748	1,339	2,065	11,615	6,483	8,649	1,895	52,901
1983	660	1,356	2,120	1,105	2,440	1,005	1,064	1,241	2,689	1,343	2,291	11,684	5,086	8,688	1,801	52,655
1984	638	1,438	2,296	1,087	2,174	1,209	1,157	1,388	2,780	1,412	2,480	11,576	4,663	8,879	1,798	53,847
1985	643	1,471	2,505	1,059	2,250	1,433	1,023	1,495	2,745	1,325	2,530	11,250	3,388	8,971	1,677	53,277
1986[2]	600	1,471	2,614	1,034	1,878	1,688	1,419	1,470	2,430	1,390	2,550	11,615	5,045	8,680	1,787	55,743
1987[1]	621	1,488	2,677	974	2,479	1,920	1,220	1,264	2,533	1,308	2,456	11,795	4,121	8,307	1,720	55,029

[1] Estimate. [2] Preliminary. *Source: Energy Information Administration* T.489

PETROLEUM

Production[1] of Crude Petroleum in the United States In Millions of Barrels of 42 Gallons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	263.8	243.7	268.7	257.7	269.2	259.4	268.4	267.6	261.0	269.7	260.9	266.5	3,157
1983	269.6	245.2	269.7	263.3	267.6	260.0	267.7	269.1	263.5	271.9	263.1	260.3	3,171
1984	274.9	257.4	268.8	265.9	277.6	265.6	275.4	273.1	269.8	276.1	269.4	275.8	3,250
1985[2]	276.8	250.0	276.7	265.3	278.0	270.7	277.4	272.9	268.6	278.1	267.1	279.9	3,275
1986[2]	277.2	257.1	279.1	265.5	274.0	258.7	268.4	259.6	249.8	261.0	252.4	258.9	3,168
1987[2]	262.8	232.9	258.8	252.8	257.5	247.9	255.5	253.9					

[1] Represents oil transported from producing properties, plus that remaining on properties & consumed on leases. [2] Preliminary.
Source: Bureau of Mines

T.500

United States Crude Oil[1] Supply & Disposition

Yearly Average	Supply: Field Production Total Domestic	Supply: Field Production Alaskan	Supply: Imports Total	Supply: Imports SPR[4]	Supply: Imports Other	Supply: Stock Withdrawal[3] SPR[4]	Supply: Stock Withdrawal[3] Other	Unaccounted for Crude Oil	Disposition Refinery Inputs	Disposition Exports	Ending Stocks[2] Total	Ending Stocks[2] SPR[5]	Ending Stocks[2] Other Primary
	Thousands barrels PER DAY										Million barrels		
1984	8,879	1,722	3,426	197	3,229	−195	− 4	185	12,044	181	796	451	345
1985	8,971	1,825	3,201	118	3,083	−117	67	145	12,002	204	814	493	321
1986	8,680	1,867	4,178	48	4,130	− 50	− 28	139	12,716	154	843	512	331
1987[6]	8,304	1,953	4,660	72	4,558	− 80	− 85	150	12,819	150	900	540	360
Sept.	8,190	1,874	5,085	64	5,021	− 64	−145	251	13,174	28	873	534	339
Oct.	8,293	1,986	5,119	57	5,062	− 57	−471	− 50	12,725	25	889	536	353
Nov.	8,283	2,061	5,100	89	5,011	− 88	−212		12,938		896	538	358

[1] Includes lease condensate. [2] Stocks are totals as of end of period. [3] A negative number indicates an increase in stocks and a positive number indicates a decrease. [4] Strategic Petroleum Reserve. [5] Stocks of Alaskan crude oil in transit were included beginning in January 1981. Stock withdrawals are calculated using new basis levels. [6] Preliminary. *Source: Energy Information Administration*

T.489a

United States Production of Gasoline[1] In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	191.8	165.7	186.5	183.4	196.7	203.5	210.7	200.1	196.5	194.9	188.9	203.2	2,322
1983	188.7	164.3	183.7	186.7	199.0	200.6	208.8	203.7	199.3	192.7	199.7	196.1	2,323
1984	187.7	184.1	197.6	196.4	207.0	199.6	200.9	199.5	196.2	198.7	202.1	201.4	2,371
1985[2]	183.0	165.7	187.9	190.4	203.2	204.2	211.5	212.3	189.8	197.8	195.2	206.7	2,352
1986[2]	202.8	177.2	188.6	195.8	220.9	214.1	216.8	221.2	208.7	206.0	207.5	216.5	2,476
1987[2]	208.2	179.0	204.0	206.5	217.5	213.7	219.1	215.8					

[1] Gasoline and naphtha from crude petroleum and natural gasoline used at refineries. [2] Preliminary. *Source: Bureau of Mines*

T.502

United States Domestic Consumption of Gasoline In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	185.5	174.0	201.2	207.7	207.1	206.1	211.4	206.1	196.9	198.8	197.6	203.6	2,396
1983	187.8	168.9	212.5	194.4	205.8	210.8	210.7	216.0	202.8	205.2	198.8	212.9	2,427
1984	194.6	181.4	202.8	201.1	214.7	214.1	212.5	220.9	198.3	209.2	204.7	203.7	2,458
1985[1]	197.0	183.1	206.2	208.8	218.9	210.8	218.3	225.6	199.8	214.6	203.7	211.4	2,503
1986[1]	201.7	180.8	216.9	213.5	221.4	217.3	231.6	231.7	207.8	225.6	207.1	222.1	2,579
1987[1]	201.2	189.1	215.5	220.5	232.5	226.9	235.7	227.6					

[1] Preliminary. *Source: Bureau of Mines*

T.503

Stocks of Finished Gasoline on Hand in the United States, at End of Month In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1982	215.9	211.2	200.7	181.0	175.6	179.5	185.0	187.6	193.3	194.6	191.9	196.8
1983	210.0	209.2	185.4	185.4	188.0	185.4	192.3	187.4	191.8	189.5	198.4	187.8
1984	188.0	199.3	204.8	209.7	212.7	206.5	202.2	188.3	196.5	195.5	201.2	207.9
1985[1]	200.4	192.6	188.9	184.4	183.6	188.5	194.4	190.4	189.7	182.3	185.6	192.4
1986[1]	203.5	209.0	189.8	176.7	197.8	199.7	192.0	189.7	198.5	187.0	193.0	196.4
1987[1]	211.7	209.6	208.1	203.4	197.7	194.7	191.1	189.9				

[1] Preliminary. *Source: Bureau of Mines*

T.504

Crude Petroleum Refinery Operations Ratio[1] In Percent of Capacity

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	67	65	66	66	69	75	75	71	74	71	71	70	70
1983	68	65	66	70	72	75	75	74	78	73	75	70	72
1984	73	76	75	75	77	77	76	78	78	76	77	76	76
1985[2]	75	74	74	76	78	79	81	78	77	79	80	81	78
1986[2]	80	78	76	81	86	86	84	87	86	83	84	84	83
1987[2]	81	79	78	80	82	84	86	86					

[1] Based on the ratio of the daily avg. crude runs to stills to the rated capacity of refineries per day. [2] Preliminary. *Source: Bureau of Mines*

T.496

Production of Major Refined Petroleum Products in Continental U.S. In Millions of Barrels

Year	Asphalt[2]	Aviation Gasol.	Fuel Oil		Gasoline[4]	Petro-Chemical Feedstocks	Special Naphthas	Miscel. pdt's.	Jet Fuel	Kerosene	Liquified Gases[7] (For Fuel)	Lubricants	Liquefied Gases[3]		
			Distillate	Residual									Total	at L.P.G.[5]	at L.R.G.[6]
1982	119.4	8.9	951.3	390.4	2,322				357.0	42.0		51.6	557.5	459.0	98.5
1983	135.7	9.2	896.5	310.9	2,323				373.2	40.0		53.8	599.2	479.6	119.6
1984	141.3	9.1	981.2	326.2	2,371				414.3	41.8		58.3	620.9	488.2	132.7
1985	146.3	9.3	980.9	322.0	2,352				433.9	34.5		53.1	622.0	479.3	142.6
1986[1]	149.7	11.7	1,021	324.3	2,476				472.0	32.6		58.2	618.5	466.2	152.3

[1] Estimated. [2] 5.5 barrels = 1 short ton. [3] Includes ethane & ethylene. [4] Finished. [5] Gas processing plants. [6] Refineries. [7] Liquified refinery gases. *Source: Bureau of Mines*

T.490

Stocks of Petroleum & Products in the United States on January 1 In Millions of Barrels

Year	Crude Petroleum	Strategic Reserve	Refined Products													
			Total	Asphalt[2]	Aviation Gasol.	Fuel Oil		Finished Gasoline	Petro-Chemical Feedstocks	Jet Fuel	Kerosene	Liquefied Gases[3]	Lubricants	Road Oil	Wax[4]	Unfinished Oils (Net)[5]
						Distillate	Residual									
1982	593.8	230.3	712.5	19.6	2.7	191.5	78.0	206.2		41.1	11.0	134.7	14.3			176.8
1983	643.6	293.8	628.3	15.9	2.3	178.6	66.2	196.8		36.8	10.4	94.0	12.5			158.1
1984	722.9	379.1	569.2	18.8	2.3	140.3	48.5	187.8		38.6	7.9	100.6	12.1			161.5
1985	795.9	450.5	620.6	17.2	2.7	161.1	53.0	207.9		42.0	11.9	100.8	12.7			139.8
1986	814.2	493.3	556.6	21.2	2.1	143.7	50.4	192.4		40.5	7.5	73.5	11.8			148.0
1987[1]	842.8	511.6	609.4	17.7	2.2	155.1	47.4	196.4		49.7	8.4	102.7	14.2			140.4

[1] Preliminary. [2] 5.5 bbls. = 1 s. ton. [3] Includes ethane & ethylene at plants & refineries. [4] 1 bbl. = 280 lbs. [5] And misc. products. *Source: Bureau of Mines*

T.493

Stocks of Crude Petroleum[1] in the United States at Beginning of Month In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1982	593.8	606.2	613.0	609.2	610.4	609.5	608.3	612.8	626.5	618.6	635.6	647.5
1983	643.6	660.4	669.4	666.8	678.9	679.4	683.0	675.8	700.5	707.7	716.2	712.7
1984	722.9	733.1	727.4	728.2	742.5	763.6	766.6	771.8	764.1	756.3	779.8	786.9
1985[2]	795.9	793.5	785.6	790.7	806.7	828.3	820.6	810.5	805.6	806.6	803.6	812.4
1986[2]	814.2	826.3	827.3	837.8	836.9	828.5	828.4	845.2	837.7	844.2	851.4	848.6
1987[2]	842.8	848.7	848.7	853.3	853.0	850.5	857.0	856.2	866.2			

[1] Total gasoline-bearing in the U.S. [2] Preliminary. *Source: Bureau of Mines*

T.501

U.S. Production of Residual Fuel Oil and Distillate Fuel Oils In Millions of Barrels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	118.6	101.1	105.7	105.7	116.2	114.1	116.7	107.6	110.0	117.6	115.5	112.9	1,342
1983	102.1	83.8	87.7	93.3	104.8	101.2	104.5	103.1	107.0	108.1	105.8	106.0	1,207
1984	110.1	112.2	104.4	95.7	107.4	111.9	108.2	107.3	106.7	111.5	112.9	119.3	1,307
1985[1]	111.6	98.7	99.2	100.8	107.0	100.4	104.7	103.4	102.0	118.3	121.1	131.1	1,303
1986[1]	118.8	95.8	107.1	111.5	116.9	106.5	110.3	118.4	111.6	109.8	116.7	121.8	1,346
1987[1]	114.5	95.4	100.8	101.5	104.7	106.6	111.7	111.2					

[1] Preliminary. *Source: Bureau of Mines*

T.505

U.S. Foreign Trade[3] of Petroleum and Products In Thousands of Barrels (42 gallons)

	Exports		Imports			
Year	Crude Oil	Total Refined	Crude Oil	Total Refined	Distillate Fuel Oil	Residual Fuel Oil
1980	104,908	94,289	1,946,200	582,500	51,900	343,600
1981	83,200	133,900	1,654,200	534,200	63,100	292,100
1982	86,300	211,200	1,352,400	514,000	34,000	283,100
1983	59,900	209,900	1,317,800	525,900	63,500	255,200
1984	66,200	196,900	1,368,800	620,200	99,400	249,200
1985[1]	74,500	209,900	1,308,600	540,300	73,100	186,300
1986[1]	56,200	229,300	1,642,700	628,000	90,300	244,200
1987[2]	51,200	189,300	1,934,000	495,600	78,100	227,000

[1] Preliminary. [2] Estimate. [3] Includes shipments to & from noncontiguous territories.
Source: Energy Information Administration

Average Price of Crude Petroleum at Wells[1] Index (1967 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	513.6	515.1	522.8	533.9	540.1	549.0	551.4	566.8	571.3	579.6	600.6	632.8	556.4
1981	704.4	842.7	842.8	842.5	839.9	815.9	798.9	796.8	796.8	788.2	785.9	787.2	803.5
1982	787.2	770.3	744.8	717.9	717.8	718.2	718.4	718.4	718.3	735.3	733.6	720.0	733.4
1983	719.7	692.9	678.0	678.0	678.0	677.9	675.7	675.1	675.7	675.7	675.6	674.4	681.4
1984	675.6	675.6	675.6	673.9	673.9	673.3	672.6	671.1	670.6	669.8	655.8	649.4	669.8
1985	631.2	615.1	615.5	617.6	620.9	620.1	618.9	614.1	615.5	618.5	621.4	624.3	619.4
1986[2]	618.1	489.0	353.1	300.7	293.0	300.9	273.8	263.8	311.8	308.8	307.4	308.3	344.0
1987[2]	369.6	384.2	383.4	390.3	401.4	413.9	437.7	448.1	425.1	417.5			

[1] Buyers posted prices. [2] Preliminary. *Source: Bureau of Labor Statistics* (0561) T.497

Average Wholesale Prices of Gasoline[1] (Regular Grade—Leaded) Index (Feb. 1973 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	481.1	517.5	560.4	585.4	595.5	598.6	601.1	602.9	599.6	591.5	590.8	596.1	576.7
1981	607.5	632.9	683.2	694.7	690.4	685.6	677.4	668.4	666.4	666.1	661.7	657.7	666.0
1982	651.7	642.3	621.1	578.6	555.7	582.7	628.8	636.3	628.4	617.2	608.7	598.5	612.5
1983	576.7	551.4	533.5	515.3	537.2	559.5	566.6	571.2	566.3	559.2	548.2	535.8	551.7
1984	518.3	512.4	517.9	520.5	532.6	531.0	520.9	504.6	500.3	509.8	511.3	502.0	515.1
1985	480.5	458.4	467.2	493.9	522.5	535.7	539.3	526.7	513.6	506.1	520.1	523.0	507.3
1986[2]	486.5	427.7	327.8	310.4	348.4	361.4	286.6	282.5	311.9	284.5	283.9	289.1	333.4
1987[2]	320.5	340.4	341.0	359.1	364.5	375.8	386.4	401.3	379.0	374.0			

[1] Excludes aviation. [2] Preliminary. *Source: Bureau of Labor Statistics* (0571–02) T.498

Month–End Open Interest of Crude Oil Futures in New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	23,168	27,650	28,142	26,647	23,970	28,635	37,349	32,245	32,236	37,613	39,896	49,201
1985	63,458	57,479	44,532	45,875	50,450	57,820	52,134	53,743	64,731	64,981	58,099	61,161
1986	66,522	64,007	72,083	92,863	98,292	102,404	131,234	97,455	100,805	114,505	100,041	121,248
1987	134,716	147,632	158,154	147,705	138,707	167,392	178,226	193,788	188,337	156,013	159,115	208,259

Source: N.Y. Mercantile Exchange T.502b

Volume of Trading of Crude Oil Futures in New York In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1984	108.7	130.7	121.5	106.2	136.4	134.5	154.9	200.4	111.2	243.3	174.7	217.7	1,840.3
1985	385.3	263.3	298.5	272.6	290.1	342.2	329.8	269.7	339.8	365.9	337.9	386.8	3,980.9
1986	520.1	490.9	560.0	691.4	677.0	612.7	860.5	701.6	666.7	986.4	604.4	941.8	8,313.5
1987	873.2	968.4	1,199	1,059	937.3	1,196	1,412	1,505	1,126	1,205	1,287	1,813	14,582

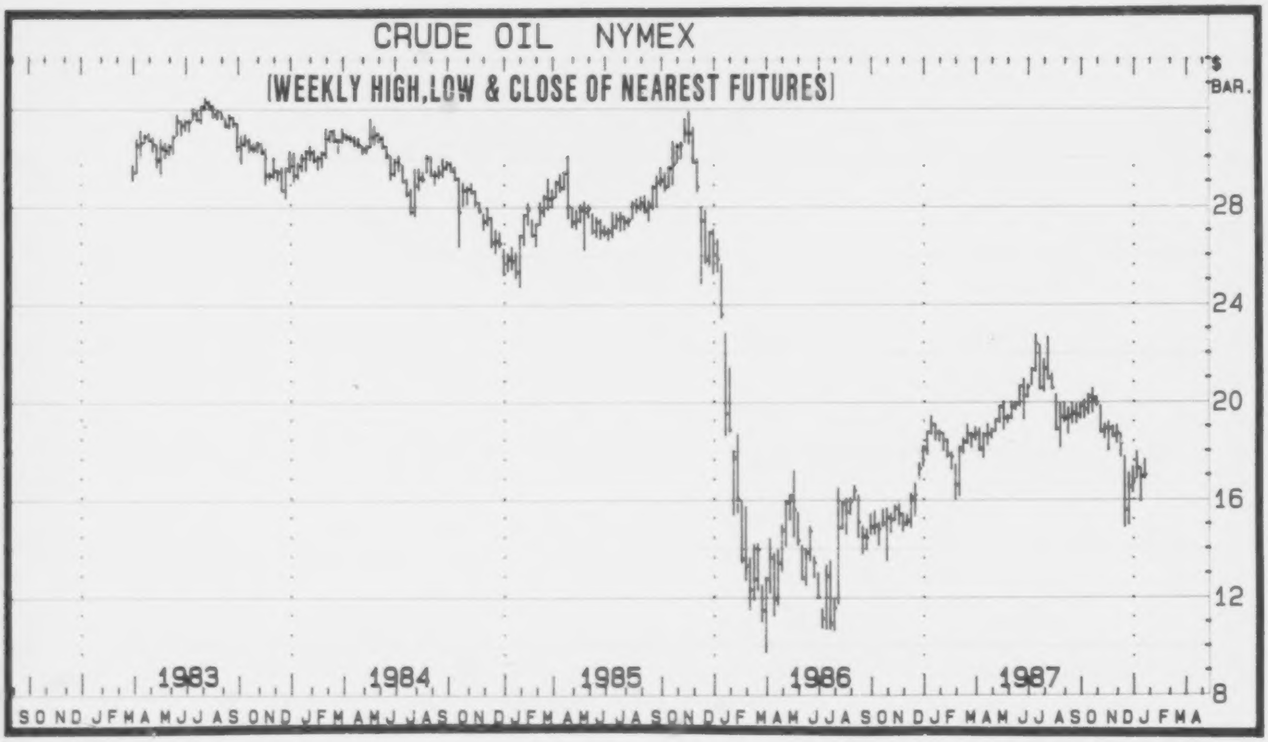
Source: N.Y. Mercantile Exchange T.502c

High, Low & Closing Prices of December Crude Oil Futures in New York In Dollars Per Barrel

Year of Delivery		Year Prior to Delivery			Delivery Year											Life of Delivery Range
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	
1984	High	—	29.75	29.55	29.60	30.50	30.56	30.42	31.60	30.89	30.34	30.29	30.02	29.92	28.87	31.60
	Low	—	28.60	27.50	28.20	28.85	30.05	30.15	30.10	29.62	28.01	28.31	29.23	26.93	28.30	26.93
	Close	—	29.00	28.20	29.15	30.03	30.35	30.15	30.85	30.25	28.19	29.72	29.89	28.46	28.44	—
1985	High	29.50	27.93	27.20	25.95	26.50	27.60	28.60	26.65	26.25	26.49	27.68	28.65	30.40	31.82	31.82
	Low	26.99	26.56	25.91	23.90	25.00	25.90	26.55	26.10	24.58	24.93	25.60	26.12	27.84	29.93	23.90
	Close	27.66	26.72	25.91	25.35	25.45	27.42	26.77	26.50	25.50	25.66	27.40	28.63	30.38	31.72	—
1986	High	25.60	26.45	25.66	22.05	19.23	15.85	14.85	15.30	13.80	12.70	15.92	16.52	15.85	15.83	26.45
	Low	23.80	24.74	22.18	19.15	15.05	11.69	11.20	13.00	12.70	10.40	11.28	13.90	13.52	14.68	10.40
	Close	25.33	24.74	22.21	19.19	15.44	11.69	12.82	13.56	12.82	11.28	15.85	14.93	15.27	15.08	—
1987	High	—	—	—	18.15	18.10	18.08	18.14	18.94	20.31	21.39	21.65	19.59	20.52	19.83	21.65
	Low	—	—	—	16.68	16.40	16.42	17.33	17.79	18.75	19.99	18.10	18.54	19.30	18.05	16.40
	Close	—	—	—	18.03	16.58	17.97	17.77	18.80	20.05	20.71	19.43	19.48	19.96	18.93	—
1988	High	—	18.15	18.00												
	Low	—	17.94	14.99												
	Close	—	17.94	15.97												

Source: N.Y. Mercantile Exchange

T.502a



Plastics

The plastics materials industry had a good 1987, with shipments increasing an estimated 5 percent in real terms and exports increasing by 2.6 percent from 1986 levels. Capacity utilization was estimated to have reached 95 to 97 percent, rates not seen since the late 1970s. Plastic resins are produced from petrochemical feedstocks and intermediate chemicals. Ethylene is the most commonly used feedstock, followed by benzene and propylene. The most notable increases in materials shipments were in styrene-acrylonitrile, nylon, polypropopylene, polyvinyl chloride and polyethelene.

The U.S. maintained its trade surplus in plastics materials in 1987, with estimated exports of $2.9 billion and imports of $895 million. Approximately 13 to 14 percent of U.S. exports went to Canada. Imports increased slightly; Canada supplied about 24 percent, Japan 20 percent, and West Germany 16 percent.

Industry shipments were expected to increase another 5 percent in 1988, with exports also expected to rise. Prices are likely to continue to depend primarily on the cost of the petrochemical feedstocks. Over the longer term, the Department of Commerce has projected demand for plastics materials increasing at a 4 percent rate through 1992, as the trend toward substituting plastics for metals, wood, glass and other materials continues. Private forecasts indicate continued penetration of the automobile market, especially by polymer blends and alloys, which can offer cheaper manufacturing costs, improved fuel economy because of lower weight, and resistance to rust and corrosion. The automotive industry was expected to consume almost 60 percent of polymer blend and alloy production by 1992, with total consumption of those products increasing at a 10 percent rate during the period. The ten largest blend and alloy manufacturers accounted for 87 percent of industry shipments in 1987.

Domestic shipments of miscellaneous plastics products were expected to increase by 12 percent in 1987, largely because of strong demand in motor vehicles, construction, consumer goods, packaging and electrical/electronics equipment. This industry consists of about 10,000 companies that operate more than 12,000 facilities (more than half of which have fewer than 21 employees). These firms consumed about half of all domestic plastics materials shipments.

While two-way trade in plastics products has been increasing, the U.S. trade balance has been negative since 1985. Taiwan had a 24 percent share of the U.S. import market in 1987, with Canada holding 18 percent, and West Germany and Japan with 8 percent each. Some 28 percent of U.S. exports in 1987 went to Canada, followed by 7 percent to Japan, 6 percent to West Germany and 2 percent to Mexico. Imports may cut into the expected 8 percent growth in domestic shipments projected for 1988.

World Production of Plastics and Resins[3] (Condensation, Polymerization, Etc.) In Thous. of Metric Tons

Year	Australia	Austria	Czechoslovakia	France	— Germany — East	West	Italy	Japan	Netherlands	Poland	Belgium	Hungary	USSR	United Kingdom	United States
1976	407	404	580	1,769	679	7,088	2,266	4,952	1,723	559	824	186	3,216	2,556	13,261
1977	480	430	738	1,834	734	6,270	2,538	4,978	1,783	583	1,471	144	3,300	2,710	11,232
1978	522	434	810	1,885	762	6,703	2,466	5,882	1,962	596	1,682	209	3,516	2,621	12,380
1979	618	437	853	2,220	779	7,255	2,562	6,964	2,012	571	1,969	289	3,504	2,647	13,866
1980	709	487	894	2,052	859	6,710	2,464	6,422	1,975	667	1,835	324	3,636	2,260	12,418
1981	700	504	913	2,480	998	6,600	2,154	5,936	2,393	588	1,940	307	3,696	2,051	13,664
1982	715	454	961		989	6,275	2,142	5,986	2,502	600	2,023	322	4,057	1,966	13,009
1983	776	550	1,004	2,650	1,045	7,031	2,436	6,504	2,777	526	2,246	337	4,392	1,800	14,790
1984		613	1,034	2,694	1,056	7,409	2,718	7,424	2,641	600	2,374	377	4,500	1,900	15,505
1985[1]		606	1,100	2,756	1,048	7,553	2,640	7,301	2,500	604	2,498	382	4,700	1,800	15,762
1986[2]		590	1,140	3,050	1,045	7,841	2,662	7,334		631	2,770	415	5,500	1,850	16,730

[1] Preliminary. [2] Estimate. [3] Refers to production of thermoplastic & thermosetting resins & plastic materials obtained by chemical transformation of natural organic substances or by chemical synthesis *Source: United Nations* T.506

Production of Important Synthetic Plastics & Resin Materials in the U.S. In Millions of Pounds

Year	Phenolic Resins	Polyethlene & Copolymers	Polypropylene	Polystyrene & Copolymers	Polyvinyl Chloride & Copolymers	Year	Phenolic Resins	Polyethlene & Copolymers	Polypropylene	Polystyrene & Copolymers	Polyvinyl Chloride & Copolymers
1978	1,926	11,259	3,055	5,989	5,878	1983	1,460	14,053	4,457	6,254	6,256
1979	1,779	12,408	3,824	6,327	6,211	1984	1,656	14,621	5,216	6,857	6,828
1980	1,745	11,720	3,699	5,540	5.485	1985	1,714	15,318	5,654	7,229	6,668
1981	1,688	12,604	4,008	5,915	5,618	1986[1]	1,520	16,218	5,835	5,794	7,499
1982	1,398	12,548	3,515	5,609	5,397	1987[1]	N.A.	17,000	6,200	N.A.	7,800

Note: Data included in the table does not cover all Plastics production. Various types of Plastics production of lesser importance are not included because statistics are not available on a consistent basis. Also, many individual firms do not make their production figures known. [1] Estimate. *Sources: U.S. Tariff Commission, Bureau of Census* T.507

Average Wholesale Price Index of Plastic Materials in the United States (1967 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov.	Dec.	Average
Plastic Resins and Materials (066)													
1980	270.4	272.1	274.5	287.6	288.4	287.6	285.7	281.5	276.5	276.1	276.2	274.1	279.2
1981	274.7	276.1	279.4	285.1	287.9	290.0	295.9	297.5	296.8	299.5	293.2	294.2	289.2
1982	286.1	297.3	285.5	286.0	283.2	282.1	280.9	282.2	281.6	281.6	281.4	281.4	284.1
1983	283.8	283.1	282.1	285.4	288.0	289.1	291.3	293.7	302.6	299.1	297.9	301.5	291.5
1984	305.2	305.0	306.2	307.8	310.6	311.1	310.6	310.3	311.8	309.4	309.0	306.2	308.6
1985	305.2	306.9	306.3	306.1	305.4	307.1	307.5	306.4	305.1	300.7	300.3	299.3	304.7
1986	300.9	302.4	301.8	296.6	295.6	295.2	296.7	294.4	290.1	292.9	295.0	290.3	296.0
1987[1]	290.7	290.1	292.5	301.3	303.3	310.8	319.7	321.5	324.4	338.0	338.1		
1988													
PE Resin, Low, Pkg. Firm (0662-0301.99)													
1980	257.2	260.9	N.A.	275.1	270.8	264.0	259.4	254.4	249.4	249.3	251.8	250.9	258.5
1981	251.5	251.2	252.5	263.0	263.0	263.7	280.7	N.A.	279.8	279.9	N.A.	247.3	263.3
1982	207.5	208.1	209.7	224.5	202.1	197.2	184.3	185.3	184.2	183.9	184.7	184.7	196.4
1983	204.9	205.2	193.9	215.4	215.4	N.A.	236.2	236.2	237.8	251.6	250.9	250.9	227.1
1984	272.1	272.6	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1
1985	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1	272.1	206.8	206.8	206.8	255.8
1986	224.7	224.7	224.7	224.7	224.7	224.7	224.7	224.7	N.A.	224.0	222.5	224.5	224.4
1987[1]	220.4	222.1	217.0	223.7	225.0	238.5	243.2	250.9	251.6	258.9	273.0		
1988													
Thermoplastic Resins (0662) — Dec. 1980 = 100													
1981	100.2	101.0	102.6	104.6	105.8	106.6	109.3	110.1	109.7	110.5	107.2	107.6	106.3
1982	103.5	104.2	103.2	103.5	102.1	101.5	100.9	101.5	101.3	101.3	101.3	101.1	102.1
1983	102.4	102.1	101.5	103.4	104.7	105.2	106.3	107.3	111.6	109.6	108.8	110.6	106.1
1984	112.3	112.0	112.5	112.8	113.4	114.0	113.8	113.6	114.4	113.2	113.0	111.7	113.1
1985	111.1	112.0	111.7	111.5	111.3	111.9	111.9	111.4	110.6	108.3	108.1	107.8	110.6
1986	108.7	109.4	109.0	106.9	106.3	105.9	106.7	105.7	103.6	105.2	106.2	103.9	106.5
1987[1]	104.6	104.3	105.4	109.6	110.3	113.6	116.4	117.0	118.0	124.0	124.2		
1988													
Polystyrene Resin, Rubber Modified (0662–0602.99)													
1980	283.5	N.A.	278.8	291.4	291.9	293.2	288.0	287.6	282.1	286.0	287.3	289.4	287.2
1981	290.2	294.2	291.7	299.2	299.2	305.2	303.1	N.A.	N.A.	292.6	298.9	299.7	297.4
1982	297.8	297.8	297.8	N.A.	294.2	293.9	291.2	291.2	291.2	N.A.	291.0	290.9	293.7
1983	299.6	287.8	287.8	287.8	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	290.8
1984	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	302.5	301.6	300.8	300.2	298.9	298.2	300.7
1985	296.9	295.6	295.0	295.7	296.9	297.6	297.6	297.6	296.2	296.2	296.2	295.6	296.4
1986	307.3	307.3	304.2	N.A.	275.7	275.7	291.7	291.7	N.A.	N.A.	N.A.	N.A.	293.4
1987[1]	N.A.	N.A.	N.A.	334.4	329.2	338.2	343.6	337.3	340.1	343.9	343.8		
1988													
Thermosetting Resins (0663)—Dec 1980 = 100													
1981	101.4	101.1	101.4	104.0	104.5	105.4	106.6	106.5	106.6	107.7	107.6	108.2	105.1
1982	108.0	107.9	108.1	108.1	108.0	108.6	108.7	108.8	108.9	108.8	108.9	109.2	108.4
1983	109.0	108.8	108.9	108.5	108.4	108.6	108.7	109.4	110.1	110.8	111.5	111.5	109.5
1984	112.2	112.7	113.1	113.3	116.1	114.6	114.4	114.6	114.5	114.4	114.2	114.2	114.0
1985	114.1	114.1	114.2	114.1	114.0	114.6	114.9	115.0	115.3	115.7	115.7	115.1	114.7
1986	114.9	115.0	115.1	113.7	113.5	114.0	114.0	113.4	113.3	112.7	112.8	112.7	113.8
1987[1]	110.1	110.0	110.5	110.8	112.4	114.5	120.0	121.2	122.4	121.9	120.9		
1988													
Phenolic Molding Compound (0663–0201.99)													
1980	239.7	239.7	244.3	249.9	251.3	251.3	250.4	240.2	240.2	240.2	240.2	240.2	244.0
1981	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	254.2	254.2	254.2	254.2	254.2	254.2	254.2
1982	254.2	254.2	254.2	254.2	254.6	254.6	254.6	254.5	254.5	254.5	254.5	254.5	254.4
1983	249.6	245.7	245.7	245.7	245.7	245.7	245.7	245.9	246.0	246.0	245.6	245.7	246.1
1984	245.6	245.8	246.3	252.1	259.5	260.2	259.4	259.4	259.7	259.6	259.2	259.2	255.5
1985	259.2	259.2	259.2	259.2	259.2	259.2	259.2	268.1	268.1	268.1	268.1	268.1	262.9
1986	267.3	267.3	267.3	259.2	252.4	252.4	252.4	252.4	252.4	252.4	252.4	252.4	256.7
1987[1]	256.5	252.4	252.4	257.4	285.1	285.3	285.3	292.0	292.0	292.0	292.0		

T.508

[1] Preliminary. *Source: Bureau of Labor Statistics*

Platinum-Group Metals

Demand for platinum and palladium in countries in the Western World was forecast at about 3 million ounces each in 1987, according to Johnson Matthey Ltd. Platinum production outside the USSR was put at 2.57 million-2.77 million ounces, with Soviet sales to the West expected at 250,000-310,000 ounces. Total demand was estimated at 2.68 million-3.37 million ounces. Ending stocks were expected to drop by 50,000-60,000 ounces. Palladium supplies were estimated at 2.76 million-3.28 million ounces, with Soviet sales comprising 1.5 million-1.8 million ounces of the total. Demand was estimated at 2.82 million-3.32 million ounces, causing an inventory drawdown of from 40,000-60,000 ounces.

Spot platinum was volatile in 1987, rallying from $478/oz. in early January to a high of $631 in August. The falling dollar encouraged hoarding by Japanese investors, who after dishoarding approximately 120,000 ounces of large bars or ingots in 1986, purchased at least that much in 1987. Japan is the world's largest consumer of platinum jewelry, and the soft dollar kept prices attractive to Japanese buyers. Jewelry manufacturers tend to face sales resistance when platinum tops 3,000 yen/gram. Through August 1987, prices averaged 2,75[illegible] yen.

Unlike 1986, when U.S. investors were heavy buyers of small platinum bars and coins, the noble metal took a back seat to silver and the stock market in 1987. Sales of smaller platinum investment items were expected to fall below 130,000 ounces, compared with 300,000 in 1986. Industrial use was good; but expectations that U.S. auto sales would fall by some 13 percent to 10 million units dampened speculative interest, as did the smooth flow [illegible] supplies from South Africa, where strikes reduced 1986 output. Prices peaked when South African coal and gold miners went on strike, but platinum mines were unaffected. Futures prices weakened, and fell below $600/oz. (basis October) in September after the gold miners returned to work; and prices broke $500 after October's stock market crash. Fears of slumping auto sales discouraged investors. U.S. automakers were expected to reduce fourth-quarter 1987 production by 6.5 percent from 1986 levels and by about 10 percent in the first quarter of 1988.

Recovery of platinum-group metals (PGM) from catalytic converters was expected to increase marginally in 1987. However, the Bureau of Mines (BOM) estimates that less than 35 percent of the PGM is salvaged. Other U.S. PGM sources are relatively small; more than 90 percent of U.S. usage is imported.

The Stillwater, Montana mine, expected to yield 75,000 ounces of palladium and 25,000 of platinum annually, opened ahead of schedule in March 1987 and was processing 650 tons of ore a day by September. Stillwater's concentrates are smelted and refined in Belgium, resulting in a five-month lag until delivery of the palladium and platinum sponge. The mine's owners are considering boosting ore production to 1,000 tons daily and constructing an on-site smelter. Most other North American PGM output is a by-product of nickel and other mineral processing.

In South Africa, the Lefkochrysos Mine, expected to mill 160,000 tonnes of ore a month by 1990, was due to open in late 1988. Its ore reserves were estimated at 125 million tonnes, yielding 5.9 grams per tonne of PGM and gold.

Rhodium has become increasingly important in catalytic converters, and its average price was over $1,200/oz. during 1987. Prices peaked at $1,305 at the beginning of August and lost very little after the stock market crash. Increasing use of catalytic converters in Europe and Canada (which adopted full 1983 U.S. emissions standards in September 1987) was expected to keep both rhodium demand and prices firm in 1988. Demand for the remaining PGM (osmium, ruthenium and iridium) was expected to be somewhat lower than in 1986.

Palladium use in catalytic converters is slipping, due to the superior performance of platinum-rhodium three-way catalysts. But palladium has gained market share in dental applications, where palladium-silver alloys outperform more expensive gold alloys. Dental use may have topped 1 million ounces worldwide in 1987. In electronics, palladium use was expected to increase about 10 percent from 1986 levels to about 1.5 million ounces. Major applications are in ceramic capacitors and integrated circuits. Palladium coatings are replacing gold in some connectors, but silver is replacing palladium in others.

PGM catalyst usage in petroleum refining and the glass and glass fiber industries was expected to rebound in 1987. But use by the chemical industry (primarily in making nitric acid) was expected to fall slightly to about 190,000 ounces.

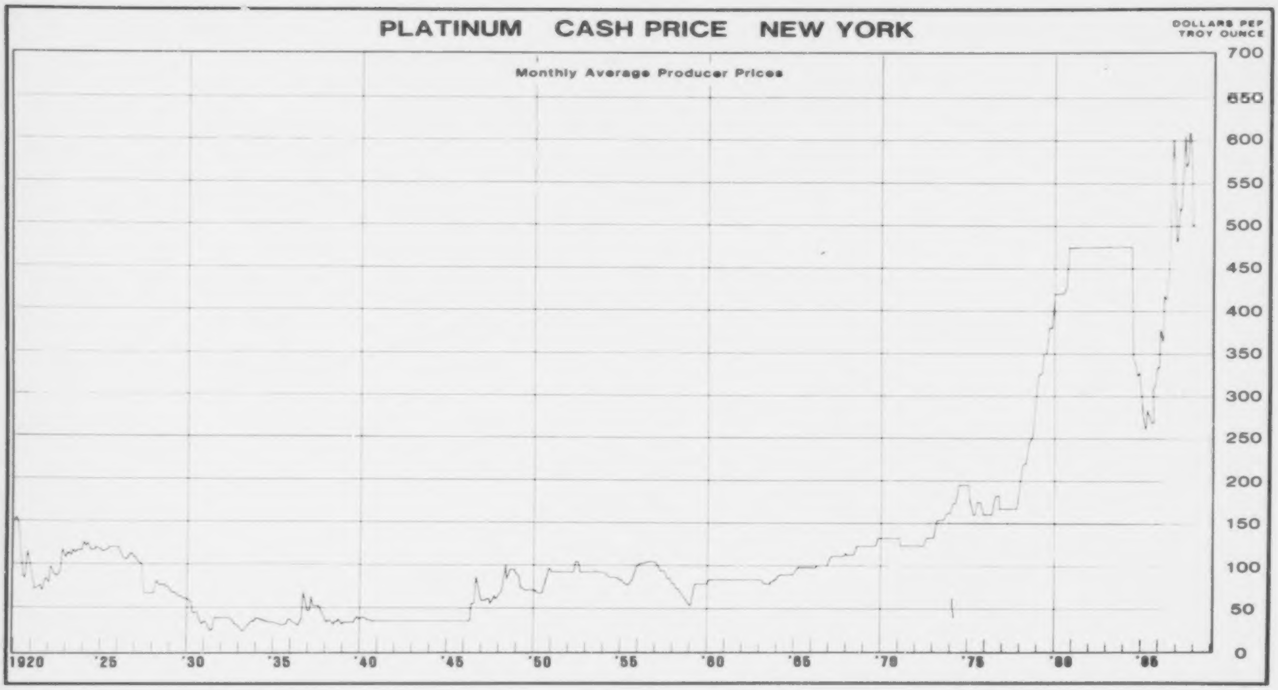
Futures Markets

In the U.S., platinum and palladium futures are traded on the New York Mercantile Exchange. Platinum futures are also traded on the Tokyo Commodity Exchange for Industry.

World Mine Production of Platinum-Group Metals In Troy Ounces

Year	Australia	Zimbabwe	Finland	Canada	Colombia[3]	Ethiopia	Japan	South Africa	USSR	United States	Yugo-slavia	World Total[1]
1981	14,989	7,500	3,601	382,658	14,804	125	36,269	3,110,000	3,350,000	7,318	3,601	6,930,865
1982	15,767	4,469	8,809	228,425	11,886	125	43,273	2,600,000	3,500,000	8,033	3,311	6,424,098
1983	13,900	4,090	4,469	223,925	10,303	125	58,582	2,600,000	3,600,000	6,257	3,119	6,524,770
1984	13,900	1,994	2,154	348,216	10,106	125	53,325	3,500,000	3,700,000	14,635	3,300	7,647,755
1985[2]	16,000	1,576	2,200	337,088	11,650	125	65,919	3,700,000	3,800,000	N.A.	3,550	7,938,108
1986[1]	16,000	1,500	2,000	281,000	12,000	125	68,011	3,600,000	3,850,000	N.A.	3,200	7,833,836

[1] Estimate [2] Preliminary [3] Placer platinum. *Source: Bureau of Mines* T.509



Platinum-Group Metals Sold to Consuming Industries in the United States In Thousands of Troy Ounces

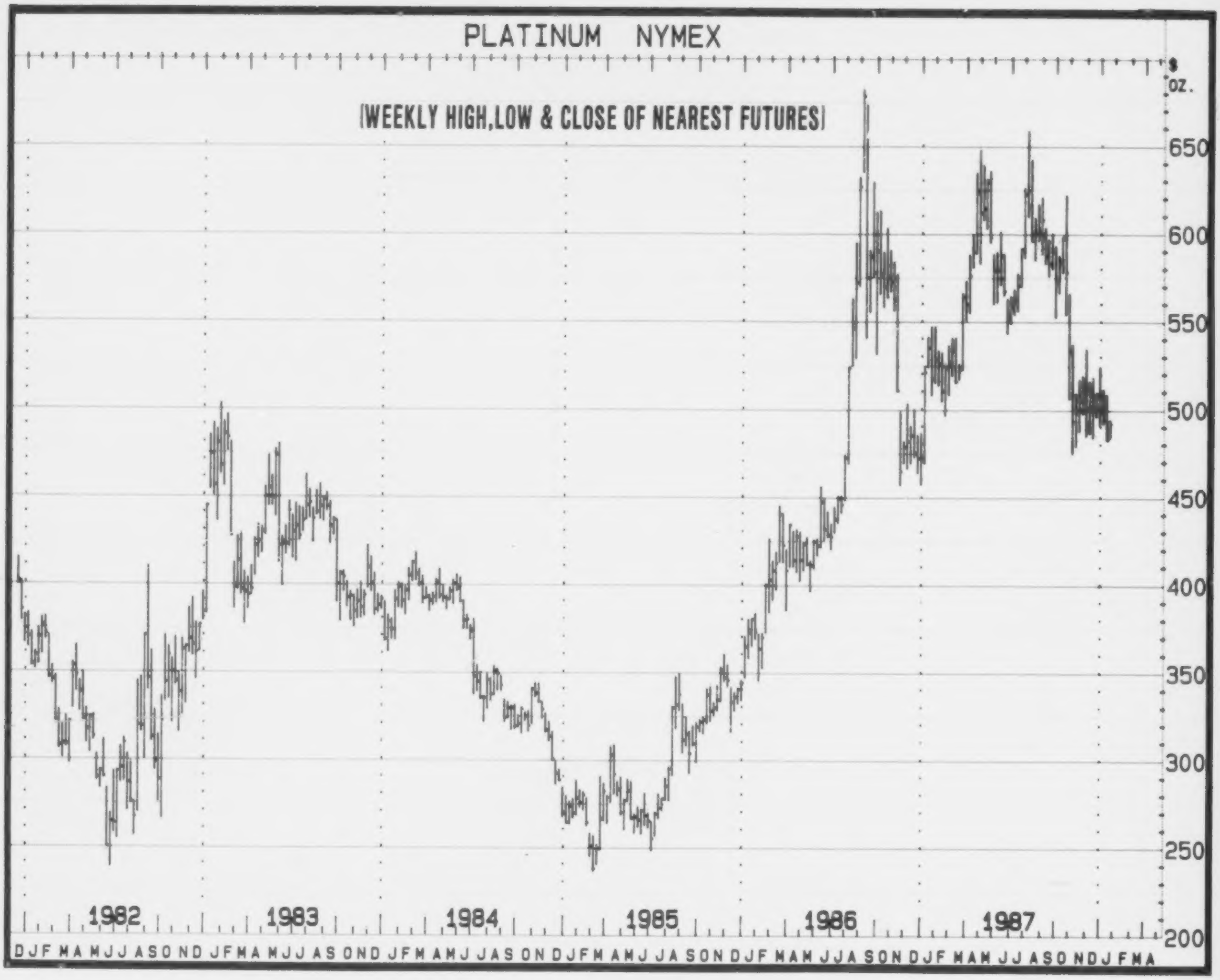
Year	Automotive		Chemical		Electrical		Dental & Medical		Jewelry & Decorative		Petroleum		All Platinum-Group Metals			
	Platinum	Others[2]	Platinum	Others[2]	Platinum	Others[2]	Platinum	Others[2]	Platinum	Others[2]	Platinum	Others[2]	Platinum	Palladium	Other[2] Metals	Total
1978	597.5	201.8	149.7	186.5	106.4	346.5	44.1	208.0	25.8	25.1	108.4	19.2	1,196.3	917.9	145.4	2,259.6
1979	803.2	248.3	98.6	264.9	115.8	457.4	27.1	244.9	27.7	21.6	170.0	27.9	1,408.9	1,132.6	214.5	2,756.0
1980	517.1	214.2	119.0	165.6	150.1	376.1	25.8	245.4	51.0	22.6	144.0	26.7	1,118.2	912.0	175.7	2,205.9
1981	446.7	160.6	78.1	152.4	111.7	388.3	18.7	255.8	27.6	19.6	88.3	22.9	872.6	889.2	158.8	1,920.7
1982	477.8	144.8	63.6	200.6	90.0	348.4	22.8	312.1	16.0	12.7	21.6	21.7	780.1	926.3	166.8	1,873.3
1983	508.5	191.8	65.4	99.8	74.7	404.8	16.7	261.7	10.3	10.6	38.0	51.1	796.7	921.8	195.4	1,914.0
1984	569.0	232.3	73.5	108.7	99.2	452.8	18.6	349.0	9.5	11.0	28.0	92.7	876.2	1,150.5	173.1	2,199.8
1985	619.0	250.3	85.2	87.4	115.8	359.1	24.5	340.1	16.0	12.8	28.8	81.0	1,025.8	1,060.3	185.4	2,271.5
1986[1]	625.0	233.2	77.7	75.4	103.5	386.3	22.6	403.5	11.9	11.5	30.6	61.0	983.4	1,056.3	210.0	2,249.7
1987[3]	435	260	60	15	65	330	16	370	6	5	22	45	700	1,060	140	1,900

[1] Preliminary. [2] Palladium, iridium, osmium, rhodium, & ruthenium. [3] Estimate. *Source: Bureau of Mines* T.512

Salient Statistics of Platinum and Allied Metals in the U.S. In Troy Ounces

Year	Net Import Reliance as a % of Apparent Consump.	Production Crude[5]	Refinery		Stocks as of Dec. 31[1]				Imports for Consumption	Value of Imports Mil. $	Exports		
			New Metal	Secondary Metal	Platinum	Palladium	Other	Total			Platinum	Other Groups[3]	Other
1979	89	7,300	8,392	309,022	305,605	323,865	131,812	761,282	3,479,128	840.5	207,832	522,195	189,218
1980	87	3,348	2,300	330,923	502,185	353,002	118,074	973,261	3,501,782	1,177	289,454	302,457	173,053
1981	83	7,318	5,607	391,637	401,389	398,933	117,856	918,178	2,849,617	800.3	391,194	258,745	213,426
1982	81	8,033	7,078	344,160	604,632	384,184	117,812	1,106,628	2,493,706	553.9	175,805	262,764	397,307
1983	89	6,257	5,884	303,165	433,457	412,178	97,513	943,148	3,218,022	752.8	184,599	261,188	782,967
1984	89	15,000	14,433	339,526	648,130	524,924	145,593	1,318,647	4,474,106	1,118.1	220,885	377,802	563,345
1985	92	N.A.	3,987	258,597	571,725	454,999	101,955	1,128,679	3,989,594	1,025.7	187,013	339,254	362,384
1986[2]	98	N.A.	4,355	231,031	948,468	638,746	167,239	1,754,453	4,477,177	1,346.7	104,155	277,772	368,748

[1] In hands of refiners, importers, & dealers. [2] Preliminary. [3] Palladium, rhodium, iridium, osmium, ruthenium & osmium metals & balloys. [4] Ore & concentrates, waste, scrap & sweepings. [5] From crude platinum placers & byproduct platinum-group metals.
Source: Bureau of Mines T.513



Average Merchant's Prices of Platinum in New York In Dollars Per Troy Ounce

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1973	132.50	141.97	152.50	152.50	152.50	152.50	152.50	152.50	155.24	160.50	160.50	160.50	152.18
1974	162.68	172.50	172.50	172.50	174.55	195.00	195.00	195.00	195.00	195.00	195.00	195.00	184.98
1975	195.00	180.53	175.00	163.06	160.00	160.00	162.73	175.00	175.00	172.17	160.00	160.00	169.87
1976	160.00	160.00	160.00	160.00	160.00	163.54	175.60	182.50	182.50	182.50	167.00	167.00	168.39
1977	167.00	167.00	167.00	167.00	167.00	167.00	167.00	167.00	167.00	167.00	167.65	174.81	167.71
1978	186.55	206.58	[illegible]17.07	220.00	220.00	227.73	237.89	241.74	250.23	253.18	284.00	300.00	237.08
1979	303.41	325.00	325.00	327.38	350.00	350.00	350.00	357.83	380.00	380.00	380.00	393.33	351.83
1980	420.00	420.00	420.00	420.00	420.00	420.00	420.00	425.24	475.00	475.00	475.00	475.00	436.77
1981	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00	475.00
1982[1]	369.26	361.95	322.46	338.95	314.43	278.26	286.90	290.41	334.98	324.58	346.65	370.95	328.32
1983	441.07	468.34	400.17	410.38	446.69	420.23	431.63	438.30	431.93	399.87	389.33	399.70	423.14
1984	375.11	391.38	398.47	395.17	388.95	386.31	345.55	336.03	327.36	324.65	328.45	309.11	383.88
1985	275.76	274.37	255.36	287.23	273.24	267.94	269.52	303.91	304.59	321.73	334.53	327.75	291.33
1986	362.77	377.74	412.48	422.93	415.52	431.23	436.50	526.52	597.92	578.50	524.65	480.14	463.91
1987[2]	519.00	518.00	533.00	586.00	606.00	569.00	573.00	611.00	590.00	567.00	500.00	501.00	556.00

[1] Prior to 1982 prices are for *producer* prices. [2] Preliminary. *Source: American Metal Market* T.511

High, Low & Closing Prices of April Platinum Futures in New York In Dollars per Ounce

Year of Delivery		Year Prior to Delivery											Delivery Year				Life of Delivery Range
		Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	
1983	High	429.6	390.0	400.0	356.0	329.5	333.0	358.1	415.0	392.0	385.0	405.0	499.3	502.0	428.0	433.0	502.0
	Low	388.0	342.6	352.0	318.0	263.0	280.5	271.5	291.0	285.2	320.0	352.0	393.0	396.3	376.5	393.0	263.0
	Close	395.0	357.2	352.0	315.2	306.4	303.3	333.1	294.4	355.1	384.3	392.6	498.7	396.3	392.6	424.0	—
1984	High	526.0	461.0	459.5	495.0	465.0	474.0	470.0	464.5	421.0	426.0	422.0	398.5	410.0	417.5	407.2	528.0
	Low	423.3	410.0	433.5	458.0	422.0	439.0	439.5	404.0	382.0	380.0	389.5	369.0	382.0	388.0	384.0	364.3
	Close	423.3	425.6	453.4	468.5	441.5	457.7	453.6	415.8	383.0	417.2	399.5	391.3	403.8	392.2	397.0	—
1985	High	438.5	447.5	440.0	427.5	433.5	402.0	370.5	352.2	345.0	350.0	328.0	289.5	282.0	290.0	308.0	447.5
	Low	415.0	422.0	414.0	411.5	401.0	343.0	350.5	335.0	327.8	322.0	291.0	265.5	244.5	236.0	263.5	236.0
	Close	433.5	426.0	417.4	426.2	402.9	349.7	361.3	336.1	331.7	323.0	293.0	280.5	249.3	281.4	281.5	—
1986	High	—	308.5	329.8	303.9	293.9	298.5	357.0	333.0	345.0	362.5	356.0	385.0	425.8	444.5	434.0	444.0
	Low	—	279.5	290.5	273.0	275.5	261.2	287.0	297.5	311.0	326.5	321.0	340.0	345.2	391.2	385.0	261.2
	Close	—	307.3	290.5	281.5	278.6	297.7	338.9	309.5	327.9	349.0	346.2	372.7	402.3	399.1	426.9	—
1987	High	430.0	448.5	446.0	434.5	463.3	475.0	620.1	689.5	622.0	586.0	506.7	553.7	536.0	573.0	647.5	689.5
	Low	361.0	400.0	398.0	404.0	425.5	432.0	471.0	546.4	564.5	459.5	462.0	472.0	496.2	515.0	551.5	361.0
	Close	409.4	412.9	430.3	433.1	441.9	473.6	620.1	558.6	576.2	481.7	476.2	527.7	525.6	555.8	602.8	—
1988	High	546.5	590.0	670.8	657.0	622.5	639.1	669.0	635.0	637.0	546.0	531.5					
	Low	516.0	533.6	573.0	588.0	565.0	572.0	600.0	580.0	516.0	484.3	493.0					
	Close	542.6	574.8	629.7	600.4	574.0	636.5	612.1	582.6	541.1	527.8	507.6					

Source: N.Y. Mercantile Exchange T.514

Month–End Open Interest of Platinum Futures in New York In Contracts

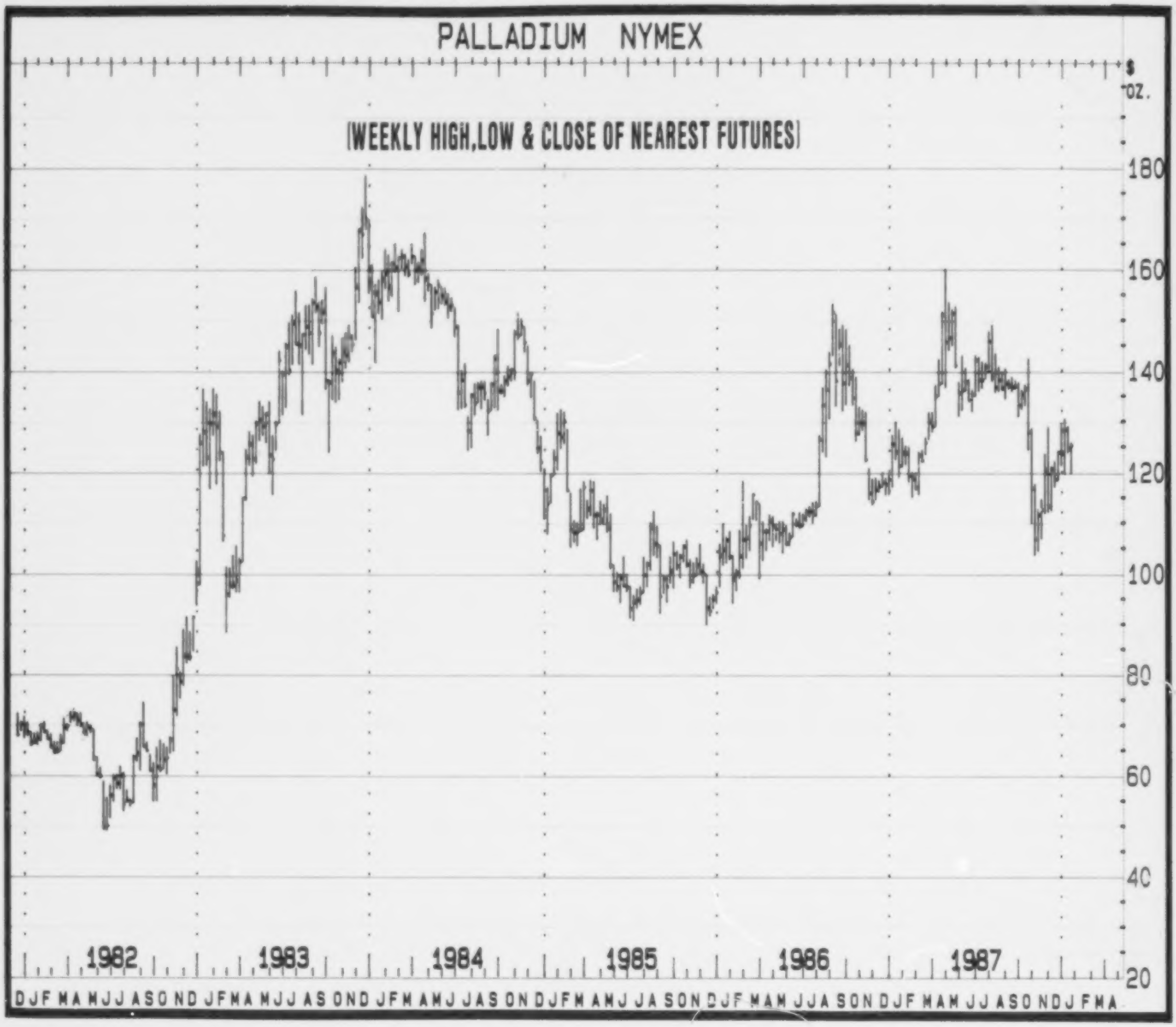
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	8,200	8,409	6,209	5,434	6,369	7,943	7,797	8,286	14,239	12,140	12,026	11,911
1981	9,410	8,946	9,441	7,709	8,130	7,891	5,520	6,446	8,421	7,055	8,601	7,839
1982	6,278	7,524	8,686	8,302	10,326	9,337	11,137	12,853	14,141	13,002	15,547	15,620
1983	19,927	23,506	15,197	15,878	18,375	15,918	16,934	15,671	15,413	12,450	13,227	13,384
1984	12,692	13,912	13,805	15,244	15,852	17,254	15,775	15,766	17,288	14,826	14,753	15,525
1985	15,210	14,131	13,256	12,096	11,668	11,371	11,677	16,492	13,149	13,068	17,969	14,853
1986	18,163	20,490	19,938	15,768	16,582	18,748	18,749	25,939	23,364	19,152	18,204	17,707
1987	16,490	16,741	19,771	19,699	17,981	17,362	20,947	22,280	26,233	22,188	20,141	17,764

Source: N.Y. Mercantile Exchange T.515

Volume of Trading of Platinum Futures in New York In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	35.2	28.5	41.7	21.4	26.6	37.6	40.8	26.7	59.7	41.0	34.8	35.9	429.7
1981	36.5	29.7	56.1	36.7	30.8	44.7	37.9	39.1	63.9	35.4	33.2	46.6	490.5
1982	32.5	29.5	48.4	42.4	33.1	46.6	55.8	76.9	84.8	70.8	70.0	78.1	669.0
1983	126.0	117.0	107.9	71.9	106.2	115.4	75.9	77.0	79.2	61.5	57.2	57.9	1,035.4
1984	44.7	43.7	68.9	54.5	44.9	53.8	55.2	38.4	52.2	35.9	38.3	40.7	571.1
1985	41.0	26.2	53.5	48.8	43.1	42.2	40.3	98.1	82.7	68.6	64.8	84.0	693.3
1986	101.3	114.7	139.8	100.3	77.0	122.2	75.4	189.8	289.4	164.8	136.6	113.3	1,624.6
1987	117.2	85.7	134.1	149.3	110.7	116.5	87.1	133.2	122.7	127.2	88.6	89.2	1,361.5

Source: N.Y. Mercantile Exchange T.516



Average Dealer[1] Price of Palladium in the United States In Dollars Per Troy Ounce

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1975	124.32	105.00	93.92	90.50	73.27	57.71	55.86	58.30	50.52	47.60	44.00	44.00	70.42
1976	42.00	39.62	37.56	38.50	41.58	48.50	55.75	50.28	53.25	52.99	59.20	52.38	47.63
1977	54.06	58.10	57.82	55.20	52.97	45.18	44.90	42.36	42.20	43.07	48.83	51.97	49.72
1978	55.10	64.86	64.18	59.33	60.82	60.42	59.53	61.86	60.09	71.58	70.74	73.25	63.48
1979	76.14	103.35	95.56	93.97	105.53	124.33	121.40	117.45	136.94	143.63	141.95	163.42	118.62
1980	220.00	262.80	259.83	194.79	169.74	169.56	199.55	203.88	212.74	204.72	185.85	155.69	203.10
1981	134.38	112.18	117.82	110.42	102.90	94.76	83.61	85.86	85.50	79.08	72.13	69.51	95.68
1982	67.70	67.53	66.99	69.43	68.51	59.27	57.35	57.76	64.50	59.99	74.03	86.14	66.60
1983	116.05	124.33	99.55	114.67	130.60	128.66	143.83	147.65	152.21	145.35	147.71	160.69	134.28
1984	157.30	161.10	159.26	161.03	156.25	154.07	140.98	135.83	136.94	140.07	146.47	136.72	148.84
1985	120.87	127.88	114.45	114.77	108.67	99.15	94.79	102.49	97.25	101.55	101.32	94.50	106.48
1986	101.83	103.18	110.62	110.64	109.23	110.40	112.00	127.05	142.30	136.68	125.36	118.15	117.29
1987[2]	123.00	121.00	124.00	138.00	147.00	139.00	141.00	141.00	137.00	131.00	114.00	120.00	131.00

[1] Based on wholesale quantities, prompt delivery. [2] Estimate. *Source: American Metal Market* T.510

Pork Bellies

Bacon is sliced from pork bellies, the layer of meat and fat from the underside of the hog. A hog has two bellies, each weighing 8 to 18 pounds, depending on the animal's slaughter weight. Bellies generally account for about 12 percent of a hog's live weight and a somewhat larger percentage of the total cut-out value. Profit margins for hog processors reflect the value of all pork products, including ham and loins, as well as bacon. Even when the overall cut-out value is profitable, the price of any one product may be weak because of seasonal demand reductions or other reasons. Typically, retail bacon demand is strongest during the summer. However, at times, futures have set contract lows during the summer.

There are no futures contracts available between the August and February deliveries, which can have the effect of distorting the weekly futures continuation chart, accompanying this article, with sharp price spikes in mid-August. This isn't a reflection of cash market conditions as of mid-August, but represents what traders think they will be six months later.

During the course of a full year, belly prices are sensitive to the inventory of bellies in cold storage and to net movement in or out (which tends to reflect demand, although a better measure is the amount of bellies being sliced into bacon). The USDA's monthly cold storage reports showed belly stocks consistently under year-earlier levels during much of 1987, because of curtailed hog production in 1986. However, belly stocks were expected to build in 1988, as the long-awaited expansion in hog production finally took hold during 1987. Typically, belly futures are at a premium to cash prices during the October-December period, which encourages storage during the fourth quarter. The premium tends to average more than 10 percent, but it narrows during periods of hog crop expansion.

Futures prices worked steadily higher during the first half of 1987, owing to reduced storage supplies and strong demand for bacon. Futures peaked in August, beginning a decline that persisted into the end of the year and neared the early 1986 levels of 50 cents/lb. The price slide was expected to carry into 1988 as belly supplies increased, while demand might be affected by a sluggish economy and a possible drop in disposable income. Although bacon demand shows strong seasonal traits, it's also responsive to the economy's health, especially if retail prices are high when real disposable income is static or declining.

Futures Markets

Pork belly futures and options are traded on the Chicago Mercantile Exchange (CME).

United States Quarterly Sliced Bacon Production[1] In Millions of Pounds

Year	Retail	Commercial	Total	Year	Retail	Commercial	Total
1982	1,000.7	500.8	1,501.5	1984[2]	1,038.0	693.6	1,754.0
I	246.3	120.9	367.2	I	253.6	176.4	430.0
II	247.2	128.0	375.3	II	246.8	162.2	409.0
III	273.5	129.2	402.6	III	268.8	166.4	435.2
IV	233.7	122.7	356.4	IV	268.8	188.6	457.4
1983	1,113.6	562.8	1,676.4	1985[2]			1,672.5
I	248.6	127.7	376.2				
II	250.8	140.8	391.6				
III	260.6	152.1	412.8				
IV	353.6	142.2	495.7				

[1] Smoked, dried or cooked. Under Federal Inspection. [2] Preliminary. *Source: Agricultural Marketing Service, USDA* T.517a

U.S. Frozen Pork Belly Storage Stocks (In Thousand Pounds, as of First of the Month)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1976	44,722	37,386	38,526	51,176	60,144	63,799	49,258	25,773	8,689	5,858	9,708	24,946
1977	42,906	38,338	36,364	52,806	69,539	80,658	62,695	29,901	9,640	5,241	4,230	20,642
1978	23,747	19,013	15,738	39,631	70,976	82,343	75,027	44,787	21,015	7,482	20,013	40,964
1979	54,367	39,432	37,172	57,744	69,689	86,065	78,935	53,373	21,800	11,077	17,739	42,156
1980	70,201	69,635	67,800	85,444	98,163	106,869	96,967	68,616	34,410	21,867	42,186	72,127
1981	97,365	90,181	94,661	104,357	125,469	132,568	117,795	72,998	36,094	16,228	18,060	35,058
1982	54,639	46,167	41,855	66,061	—	—	72,593	—	—	7,558	—	—
1983	31,292	33,592	33,400	44,304	54,510	64,671	63,468	48,409	26,642	15,672	20,047	52,924
1984	78,648	71,568	78,169	95,009	112,205	127,527	115,034	85,630	43,626	22,321	24,048	38,333
1985	57,361	53,623	51,633	68,315	83,836	96,040	88,367	61,397	35,764	20,158	29,787	47,427
1986[1]	51,314	47,633	51,218	62,508	68,325	65,895	61,547	40,333	20,797	12,941	17,022	24,528
1987[1]	37,771	34,900	34,717	41,821	50,482	58,245	47,367	28,649	18,938	12,620	14,850	35,625

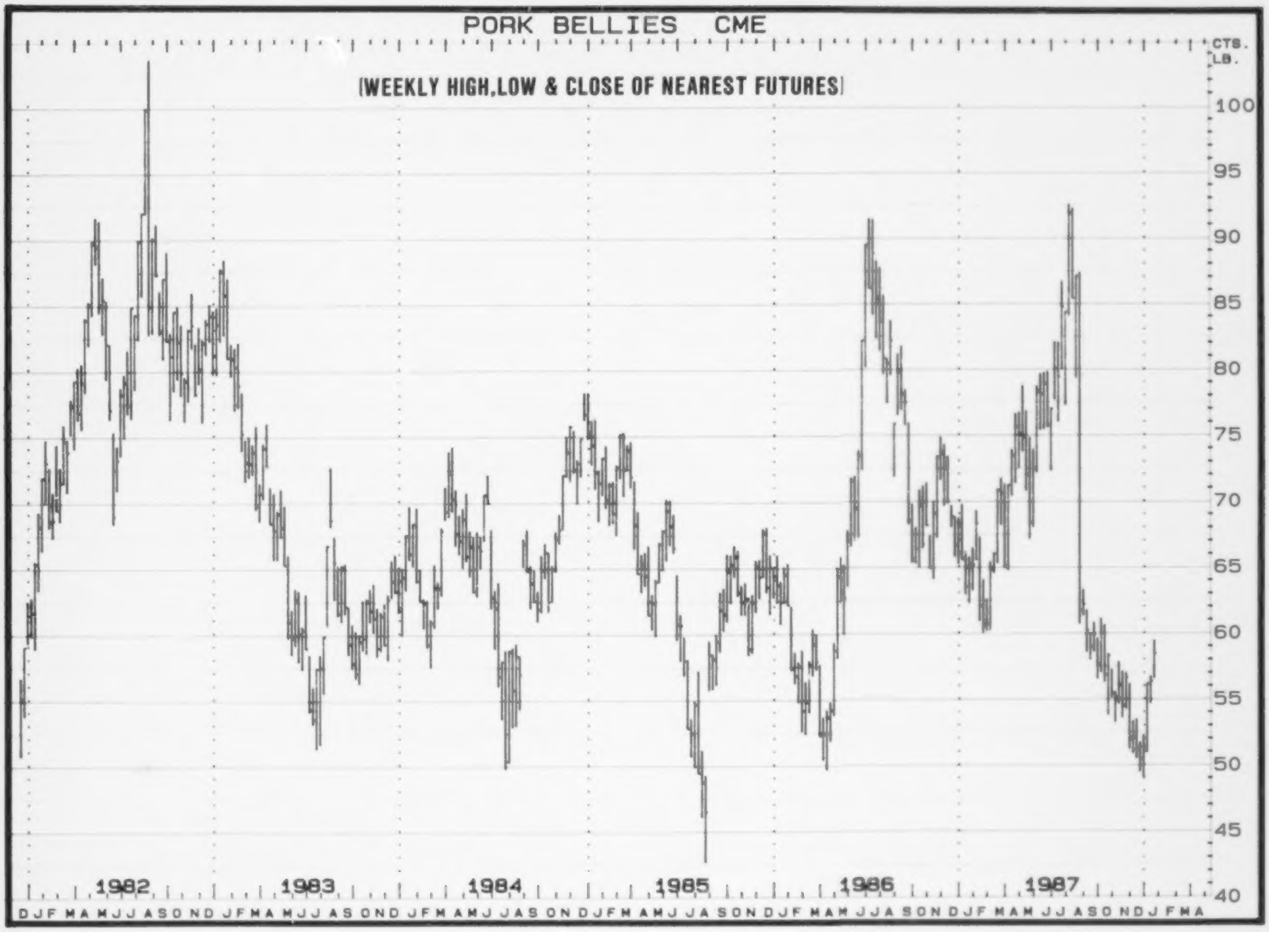
[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.517

PORK BELLIES

Weekly Pork Belly Storage Movement

	Stocks[1] in Thousands of Pounds					Stocks[1] in Thousands of Pounds			
1986 Week Ending	In	Out	On Hand	Net Movement	1985 Week Ending	In	Out	On Hand	Net Movement
Jan. 4	1,178	1,209	43,120	− 31	Jan. 5	2,407	1,008	50,546	+1,399
11	960	1,864	42,216	− 904	12	2,398	1,885	51,059	+ 513
18	523	1,101	41,638	− 578	19	1,561	2,242	50,378	− 681
25	957	1,327	41,268	− 370	26	1,074	2,164	49,288	−1,090
Feb. 1	461	1,553	40,176	−1,092	Feb. 2	706	2,499	47,495	−1,793
8	1,115	474	40,817	+ 641	9	377	2,302	45,570	−1,925
15	1,461	730	41,547	+ 731	16	956	655	45,871	+ 301
22	695	840	41,402	+ 145	23	423	772	45,521	− 349
Mar. 1	1,517	1,370	41,549	+ 147	Mar. 2	644	491	45,674	+ 153
8	1,941	769	42,991	+1,172	9	2,027	200	47,501	+1,827
15	3,330	376	45,675	+2,954	16	2,971	67	50,405	+2,904
22	3,886	623	48,938	+3,263	23	3,722	201	53,926	+3,521
29	2,111	542	50,507	+1,569	30	6,281	107	60,100	+6,174
Apr. 5	1,930	249	52,188	+1,681	Apr. 6	4,504	24	64,580	+4,480
12	2,061	360	53,889	+1,701	13	3,128	149	67,559	+2,979
19	2,011	327	55,573	+1,684	20	3,498	386	70,671	+3,112
26	1,708	452	56,829	+1,256	27	2,497	156	73,012	+2,341
May 3	1,169	273	57,725	+ 896	May 4	3,131	101	76,042	+3,030
10	306	1,055	56,976	− 749	11	2,620	70	78,592	+2,550
17	564	630	56,910	− 66	18	2,847	45	81,394	+2,802
24	426	1,060	56,276	− 634	25	2,804	154	84,044	+2,650
31	286	48	56,080	− 196	June 1	841	750	84,135	+ 91
June 7	541	340	56,281	+ 201	8	649	801	83,983	− 152
14	585	450	56,416	+ 135	15	317	2,612	81,688	−2,295
21	476	524	56,369	− 48	22	324	1,782	80,230	−1,458
28	131	2,939	53,561	−2,808	29	84	3,356	76,958	−3,262
July 5	65	3,165	50,461	−3,100	July 6	277	3,677	73,558	−3,400
12	52	3,215	47,298	−3,163	13	204	4,602	69,160	−4,398
19	190	3,142	44,346	−2,952	20	192	4,516	64,836	−4,324
26	86	3,375	41,057	−3,289	27	146	6,128	58,854	−5,982
Aug. 2	97	4,700	36,454	−4,603	Aug. 3	102	6,854	52,102	−6,752
9	167	5,959	30,662	−5,792	10	97	5,903	46,296	−5,806
16	174	4,204	26,632	−4,030	17	204	4,806	41,694	−4,602
23	72	4,327	22,377	−4,255	24	103	4,643	37,154	−4,540
30	144	4,637	17,919	−4,458	31	522	6,463	31,213	−5,941
Sept. 6	26	2,957	14,988	−2,931	Sept. 7	210	3,966	27,457	−3,756
13	309	3,913	11,384	−3,604	14	73	5,529	22,001	−5,456
20	480	1,690	10,174	−1,210	21	74	3,781	18,294	−3,707
27	982	1,224	9,932	− 242	28	166	2,550	15,910	−2,384
Oct. 4	1,257	438	10,751	+ 819	Oct. 5	1,407	1,228	16,089	+ 179
11	2,370	302	12,819	+2,068	12	1,695	483	17,301	+1,212
18	1,660	358	14,121	+1,302	19	1,779	332	18,748	+1,477
25	648	995	13,774	− 347	26	2,793	102	21,439	+2,691
Nov. 1	773	808	13,739	− 35	Nov. 2	2,986	177	24,248	+2,809
8	1,622	843	14,518	+ 779	9	4,936	127	29,057	+4,809
15	2,456	231	16,743	+2,225	16	4,743	548	33,252	+4,195
22	1,652	200	18,195	+1,452	23	3,635	244	36,643	+3,391
29	1,671	214	19,652	+1,457	30	3,144	340	39,448	+2,804
Dec. 6	3,036	83	22,605	+2,953	Dec. 7	2,057	650	40,855	+1,407
13	3,257	43	25,819	+3,214	14	1,973	489	42,339	+1,484
20	3,442	186	29,075	+3,256	21	1,466	1,575	42,230	− 109
27	3,144	489	31,730	+2,655	28	1,818	897	43,151	+ 921

[1] Total approved Chi. Merc. Exch. warehouses. [2] Preliminary. *Sources: U. S. Department of Agriculture; Chicago Mercantile Exchange* T.518



Month-End Open Interest of Pork Bellies Futures at Chicago In Contracts

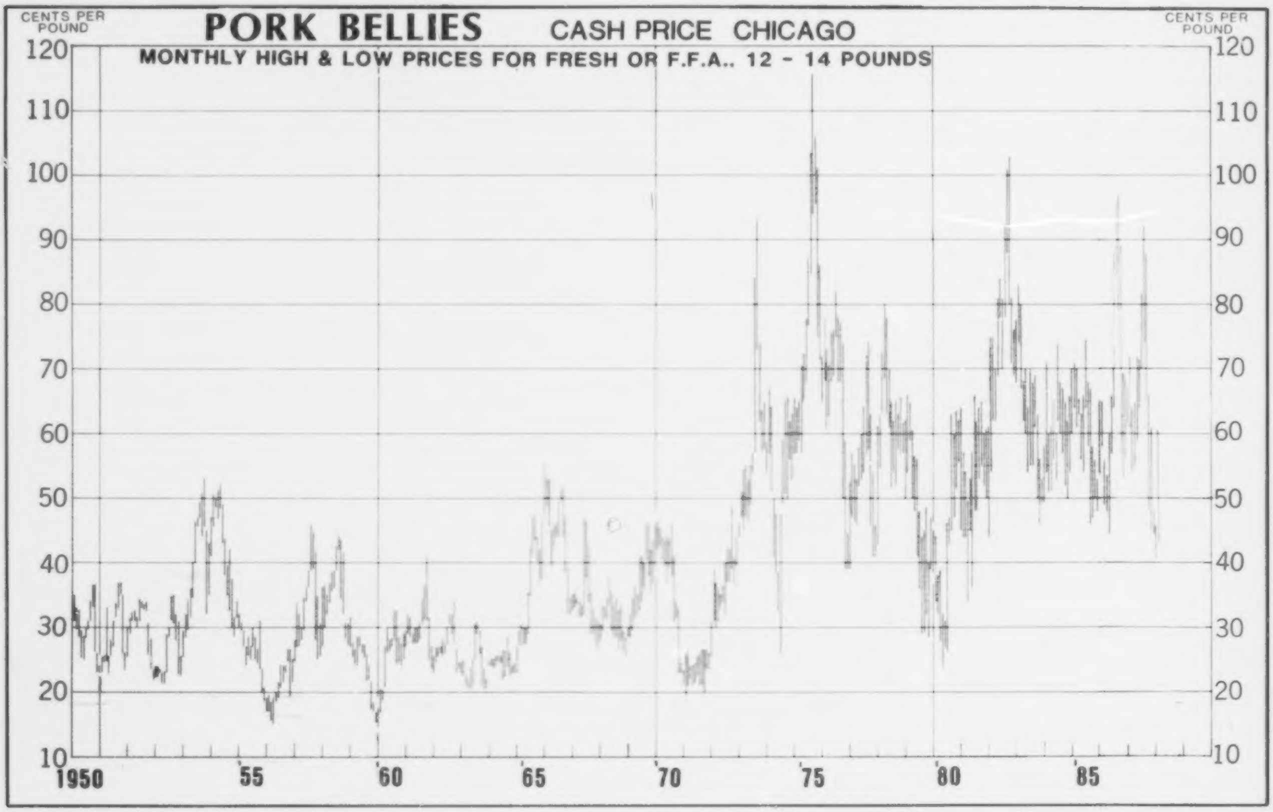
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	15,687	12,471	12,821	16,714	15,825	18,911	11,550	10,058	10,424	14,088	16,425	13,643
1982	21,542	21,666	21,048	28,063	25,765	17,940	14,203	14,799	16,090	19,063	18,596	18,521
1983	19,654	16,510	17,563	16,850	16,870	17,242	12,162	12,268	16,042	16,976	20,242	20,247
1984	18,836	17,434	19,114	18,332	17,379	17,250	9,453	7,387	8,925	9,763	13,265	13,507
1985	14,452	14,784	12,561	12,580	11,355	10,731	8,452	6,590	6,914	7,904	9,134	8,103
1986	7,821	7,826	7,145	8,987	10,530	10,838	8,567	7,698	7,915	9,432	11,453	11,057
1987	10,911	9,964	11,939	15,813	12,506	11,253	11,549	6,882	8,829	9,593	10,554	12,386

Source: Chicago Mercantile Exchange T.520

Volume of Trading of Pork Bellies Futures at Chicago In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	176,243	154,438	135,527	179,503	157,342	199,013	187,785	131,619	139,272	171,480	194,561	170,944	1,997,697
1982	196,040	216,333	263,431	265,863	301,763	248,825	217,434	229,207	188,129	224,449	227,482	232,688	2,811,674
1983	276,556	229,198	207,543	225,034	226,617	227,522	218,813	169,113	132,894	154,642	159,982	175,363	2,403,277
1984	221,795	182,080	186,817	159,774	207,820	173,066	187,619	119,469	77,028	121,926	148,940	121,711	1,908,045
1985	173,488	137,334	133,509	148,489	149,809	135,319	136,026	89,784	77,326	99,291	85,377	91,634	1,457,386
1986	92,033	81,768	75,830	96,642	106,958	100,331	109,981	78,967	91,470	87,712	91,779	86,868	1,100,339
1987	104,134	95,108	92,707	118,107	112,112	120,598	118,996	89,564	60,670	66,423	53,903	64,688	1,097,010

Source: Chicago Mercantile Exchange T.521



High, Low & Closing Prices of May Pork Bellies Futures at Chicago In Cents per Pound

Year of Delivery	Year Prior to Delivery										Delivery Year					Life of Delivery Range
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1981 High	58.50	52.60	49.75	54.50	61.60	66.25	73.30	75.15	75.15	77.05	59.60	63.00	55.30	61.35	52.65	77.05
Low	49.75	46.15	43.35	41.32	53.50	57.40	59.25	63.47	67.70	58.05	53.65	52.55	41.90	52.15	42.45	41.32
Close	51.10	48.40	43.45	53.90	59.30	59.50	68.47	71.20	75.15	58.05	57.70	52.55	55.05	52.15	48.77	—
1982 High	69.15	75.50	72.70	75.90	69.40	72.10	72.50	70.22	71.40	63.75	73.55	75.80	77.85	85.10	91.50	91.50
Low	54.50	70.15	63.00	64.10	61.75	64.12	62.70	62.95	59.25	51.90	61.12	67.55	69.00	74.75	84.15	51.90
Close	69.15	70.15	72.70	64.10	65.15	64.95	65.15	68.85	61.05	62.70	73.55	70.37	75.15	84.92	84.95	—
1983 High	73.85	77.95	79.20	77.00	75.00	82.90	85.45	82.05	83.10	83.30	86.30	81.55	76.40	75.90	70.90	86.30
Low	70.20	71.65	74.00	65.25	67.25	69.02	75.37	75.80	74.25	74.35	78.15	74.25	68.50	65.60	64.45	64.45
Close	72.60	77.55	79.00	72.72	74.35	82.10	82.40	77.80	80.75	79.70	79.70	74.25	70.60	67.80	65.05	—
1984 High	65.40	65.95	65.90	61.90	64.75	71.55	66.80	64.40	65.60	67.40	71.30	68.10	71.07	74.10	70.65	74.10
Low	61.25	62.80	60.00	56.00	54.70	61.50	59.50	58.35	60.32	60.40	62.12	59.25	60.55	65.50	64.35	54.70
Close	64.90	64.72	61.00	57.15	61.90	65.37	59.37	64.22	62.30	63.62	67.27	60.70	69.22	65.82	65.42	—
1985 High	79.95	80.50	79.00	82.47	77.70	69.50	67.70	68.52	76.50	79.00	79.15	74.90	75.40	71.52	66.30	82.47
Low	67.00	74.95	73.80	75.40	63.70	63.15	61.05	62.50	67.90	70.75	70.75	67.47	70.20	63.10	59.80	59.80
Close	78.50	75.30	74.65	77.75	64.75	66.80	62.62	68.15	76.40	78.52	72.75	70.72	71.82	65.65	65.65	—
1986 High	75.60	75.25	74.57	75.27	70.00	64.35	64.85	67.52	66.65	67.80	66.90	63.45	61.67	58.55	65.75	75.60
Low	69.00	70.55	69.80	69.70	59.50	57.05	57.25	62.35	60.00	63.00	62.35	54.40	54.37	49.65	57.65	49.65
Close	75.35	73.70	74.12	70.30	62.95	59.65	64.85	63.65	66.45	64.90	63.50	55.85	55.87	58.55	59.85	—
1987 High	63.15	63.20	62.50	70.80	78.20	76.40	79.87	69.70	72.95	72.20	68.22	66.85	71.25	76.70	78.72	79.87
Low	61.50	58.40	59.20	58.20	64.92	69.85	66.37	63.90	63.00	65.20	61.90	58.35	61.20	64.75	70.70	58.40
Close	62.77	62.20	61.10	66.92	75.40	73.85	66.45	66.25	71.62	65.77	64.45	61.40	68.97	75.10	72.00	—
1988 High	56.25	59.95	75.60	64.85	66.55	67.75	62.50	60.65	58.75	56.00						
Low	54.40	51.00	57.80	59.00	58.50	60.95	56.45	54.40	54.45	51.10						
Close	54.50	59.45	60.20	59.00	66.55	61.90	57.10	56.90	55.70	52.35						

Source: Chicago Mercantile Exchange

T.519

Potatoes

Total U.S. potato production in 1987 was estimated at 385.8 million hundredweights (cwt.), up from 361.5 million the previous season. Growers planted 1.11 million acres of fall potatoes and were expected to harvest 1.09 million, 5 percent above 1986. The 1987 fall crop of 343 million cwt. exceeded 1986's output by 8 percent. Western producing states accounted for most of the increased acreage. Idaho growers were expected to harvest 337,000 acres, up 10 percent from 1986, while Washington growers indicated they would harvest 5 percent more area in 1987.

Summer potato production was forecast to increase by 9 percent over 1986 to 23 million cwt. Summer harvest area rose by 5 percent. The spring potato harvest was down 11 percent from the 1986 level. Wet fields caused extensive seed rot and poor stands in Florida's Hastings production area, and yields were 40 percent below 1986 levels. Wet, cold weather also reduced yields in other southeastern areas. The harvest in California, the largest spring potato state, rose 5 percent from a year earlier with a 9 percent increase in acreage.

The winter crop was 15 percent below the 1986 harvest. Acreage and yields in both Florida and California fell below 1986 levels.

Fresh potato stocks entering 1987/88's fall marketing season were near the 5-year average. However, frozen potato stocks as of July 1 were 2 million cwt. (fresh-weight equivalent), down 9 percent from a year earlier. Frozen french fry stocks were 12 percent lower.

Frozen french fries and dehydrated potato products are the primary U.S. potato exports. U.S. frozen french fry exports to Japan and other Pacific Rim nations have grown, helped by a weak dollar. Table potatoes from Canada represent the biggest U.S. potato import item. Imports of fresh Canadian potatoes were expected to level off or decline somewhat during 1987/88.

The average grower price for the 1987 crops was expected to fall by 10-15 percent from 1986 levels, because of the larger fall crop. Historically, growers' prices change about 4 percent for each 1 percent change in production. However, strong export demand for potato products and a smaller beginning frozen potato inventory prevented the expected price decline, and average prices through the first six months of 1987 were about 50 percent higher than a year earlier.

Futures Markets

The New York Mercantile Exchange terminated trading in potato futures in April 1987.

Salient Statistics of Potatoes in the United States

Year	Acreage		Yield Per Harv. Acre Cwt.	Total Production Mil. Cwt.	Farm Disposition Used Where Grown			Farm Price $ Cwt.	Value of		Stocks on Jan. 1[4] 1,000 Cwt.	Foreign Trade		Consumption Per Capita — In Lbs. —	
	Planted — 1,000 Acres —	Harvested — 1,000 Acres —			Seed & Feed — Million Cwt. —	Shrinkage & Loss — Million Cwt. —	Sold[3] — Million Cwt. —		Prod.[2] — Million $ —	Sales — Million $ —		Dom. Exports — Ths. Cwt. —	(Fresh) Imports — Ths. Cwt. —	Fresh	Processed
1980	1,182	1,148	265	303.9	6.4	23.4	273.1	6.55	1,979	1,788	176,020	1,996	1,407	48.5	64.4
1981	1,263	1,232	276	340.6	6.0	26.1	306.5	5.41	1,819	1,660	147,010	2,807	2,470	43.7	66.8
1982	1,303	1,267	280	355.1	7.3	31.0	316.8	4.45	1,563	1,411	164,380	2,256	3,484	49.2	69.1
1983	1,272	1,243	269	333.9	6.0	24.7	303.3	5.82	1,936	1,765	178,980	1,957	2,702	49.5	68.5
1984	1,337	1,301	279	362.6	5.7	30.1	326.7	5.69	2,046	1,858	165,330	1,484	2,536	44.9	71.5
1985[1]	1,409	1,361	299	407.1	8.1	52.8	346.2	3.92	1,571	1,357	173,380	1,023	2,991	47.7	72.9
1986[1]	1,257	1,220	296	316.5	6.3	28.3	326.9	50.3	1,808	1,643	202,800	874	2,808	51.9	
1987[1]	1,305	1,279	302	385.7							[illegible]80,800				

Note: 60 pounds equals one bushel. [1] Preliminary. [2] Farm weight basis. Excludes canned & frozen potatoes. [3] For all purposes, including food, seed processing livestock feed. [4] Merchantable stocks held by growers & local dealers.
Source: National Agricultural Statistics Service, U.S.D.A.

T.522

Utilization of Potatoes in the United States In Millions of Cwt.

Crop Year	Sales												Non-sales			Total
		For Processing							Other Sales							
	Table Stock	Chips, Shoestrings	For dehydration	Frozen French Fries	Other Frozen Pdt's	Canned Potatoes	Other Canned Pdt's[2]	Starch & Flour	Livestock Feed	Seed	Total Sales	Used on Farms Where Grown	Shrinkage & Loss	Total Non-sales	
1980	96.8	37.9	28.2	67.2	13.7	2.1	2.0	2.2	3.9	19.2	273.1	5.0	23.2	29.6	302.9
1981	112.0	39.3	29.9	79.8	16.8	2.5	1.7	2.3	3.6	20.4	308.3	4.5	26.3	32.3	340.6
1982–3	120.3	40.7	27.7	76.0	17.3	2.7	1.8	4.6	6.2	19.5	316.8	4.7	31.0	38.3	355.2
1983–4	107.3	43.3	26.8	74.4	19.7	2.1	2.0	3.0	3.8	20.9	303.3	4.6	24.7	30.6	333.9
1984–5	113.8	42.3	27.8	87.4	20.3	2.6	1.8	3.4	4.7	22.6	326.7	4.4	30.1	35.9	362.6
1985–6	125.3	42.2	30.0	94.7	17.9	3.0	1.6	3.5	8.1	20.0	346.2	5.1	52.8	60.9	407.1
1986–7[1]	109.7	45.4	28.4	96.2	15.7	2.9	1.3	2.8	4.0	20.5	326.9	5.1	28.3	34.6	361.5

[1] Preliminary. [2] Hash, stews, soups. [3] Includes 12.0 sold for livestock feed & starch under the U.S.D.A. diversion program.
Source: Crop Reporting Board, U.S.D.A.

T.531

POTATOES

Potato Crop Production Estimates, Stocks & Disappearance in the U.S. In Millions of Cwt.

	Crop Production Estimates						Total Storage Stocks[2]						Disappearance of Previous Fall Crop Until				
	Total Crop			Fall Crop				Following Year						Following Year			
Year	Oct. 1	Nov. 1	Dec.	Oct. 1	Nov. 1	Dec. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1
1980	296.9	296.9	301.0	260.7	260.7	264.6	172.0	147.0	122.1	97.7	72.7	44.5	84.1	110.0	135.0	160.0	186.0
1981	329.9	329.9	333.7	287.1	287.1	290.7	193.6	164.4	137.8	111.8	82.3	50.8	93.6	121.0	149.0	175.0	204.0
1982	350.0	350.0	349.3	306.9	308.9	305.0	206.5	179.0	150.2	122.5	90.1	57.3	92.3	121.0	149.0	178.0	209.0
1983	329.8	329.8	325.7	292.7	292.7	325.7	192.5	165.3	138.9	112.7	81.7	50.4	90.7	117.0	143.0	169.0	200.1
1984	358.8	358.8	361.6	310.0	310.0	312.2	201.4	173.4	144.8	118.4	86.4	52.5	130.0	159.0	187.0	217.0	251.0
1985	—	400.4	404.1	—	346.1	340.8	235.5	202.8	171.5	138.7	104.5	65.4	139.0	171.0	203.0	238.0	277.0
1986[1]	—	352.3	352.3	—	307.5	301.0	209.3	180.8	154.5	128.7	95.1	59.8	96.8	124.0	150.0	176.0	209.0
1987[1]	—	361.5		—	342.7												

[1] Preliminary. [2] Held by growers & local dealers in the fall producing areas. *Source: Crop Reporting Board, U.S.D.A.* T.525

United States Potato Production by Seasonal Groups In Millions of 96.8 Cwt.

		Spring			Summer		Fall								
Year	Winter	Florida	Calif.	Total Spring	Va.	Total	Maine	Wisc.	Minn.	Colo.	No. Dak.	Wash.	Idaho	Oregon	Total Fall
1980	2.4	3.6	8.8	17.1	1.5	17.0	25.0	16.0	9.9	11.0	15.7	43.9	79.8	19.7	266.4
1981	2.2	5.3	10.3	20.8	2.3	20.0	26.5	18.2	13.3	11.6	20.1	52.9	84.5	21.7	295.6
1982	2.3	5.7	9.6	21.0	2.5	22.8	27.0	22.6	11.5	12.8	17.3	52.8	91.8	21.1	309.1
1983	2.2	5.1	8.3	18.3	1.0	18.7	22.6	18.9	10.3	14.0	20.5	54.1	86.0	20.7	294.7
1984	2.6	6.7	11.1	23.8	1.5	23.1	21.4	21.4	13.8	17.2	20.6	56.9	86.6	23.5	313.1
1985	2.7	6.6	10.6	23.0	3.3	27.8	28.2	24.1	14.1	17.9	23.6	63.6	102.5	26.9	353.6
1986	3.0	7.0	7.6	19.8	1.1	20.9	21.9	20.1	13.7	18.8	21.6	62.0	90.2	23.2	317.8
1987[1]	2.5	4.7	8.0	17.6	2.1	22.9	23.9	21.3	17.0	19.5	23.1	67.0	99.7	25.9	342.7

[1] Preliminary. December estimate. *Source: Crop Reporting Board, U.S.D.A.* T.524

United States Potatoes Processed[1], Eight States In Thousands of Cwt.

States	Storage Season	to Dec. 1	to Jan. 1	to Feb. 1	to Mar. 1	to Apr. 1	to May 1	Entire Season
Idaho and Malheur Co., Oregon	1983–4	15,755	20,445	24,785	29,540	35,155	40,640	53,810
	1984–5	19,000	24,310	29,200	34,010	39,510	44,650	57,410
	1985–6	17,830	22,980	26,660	32,170	37,910	43,240	55,220
	1986–7	13,200	17,980	21,910	27,070	33,360	38,970	55,470
	1987–8							
Maine[2]	1983–4	1,160	1,745	2,260	2,780	3,370	3,970	5,125
	1984–5	1,820	2,410	3,015	3,520	4,330	5,185	6,830
	1985–6	2,215	2,935	3,845	4,630	5,540	6,280	8,660
	1986–7	2,100	2,835	3,345	3,865	4,500	5,195	6,995
	1987–8							
Wash. and other areas, Oregon	1983–4	16,245	19,920	23,690	28,250	33,280	37,455	45,800
	1984–5	20,745	24,690	29,345	33,560	38,815	43,380	51,670
	1985–6	21,725	25,665	29,450	34,450	39,990	45,110	57,430
	1986–7	21,530	25,510	28,530	33,595	39,610	44,865	56,930
	1987–8							
Other States[3]	1983–4	4,305	6,005	7,755	9,600	11,615	13,400	16,320
	1984–5	5,695	7,510	9,210	10,930	12,745	14,715	21,005
	1985–6	6,470	7,990	9,900	12,020	13,860	16,095	22,245
	1986–7	6,240	8,405	10,330	12,320	14,690	16,750	20,975
	1987–8							
Total	1983–4	37,465	48,115	58,490	70,170	83,420	95,465	121,055
	1984–5	47,260	58,920	70,770	82,020	95,400	107,930	136,915
	1985–6	48,240	59,570	69,855	83,270	97,300	110,725	143,555
	1986–7	43,070	54,730	64,115	76,850	92,160	105,780	140,350
	1987–8							

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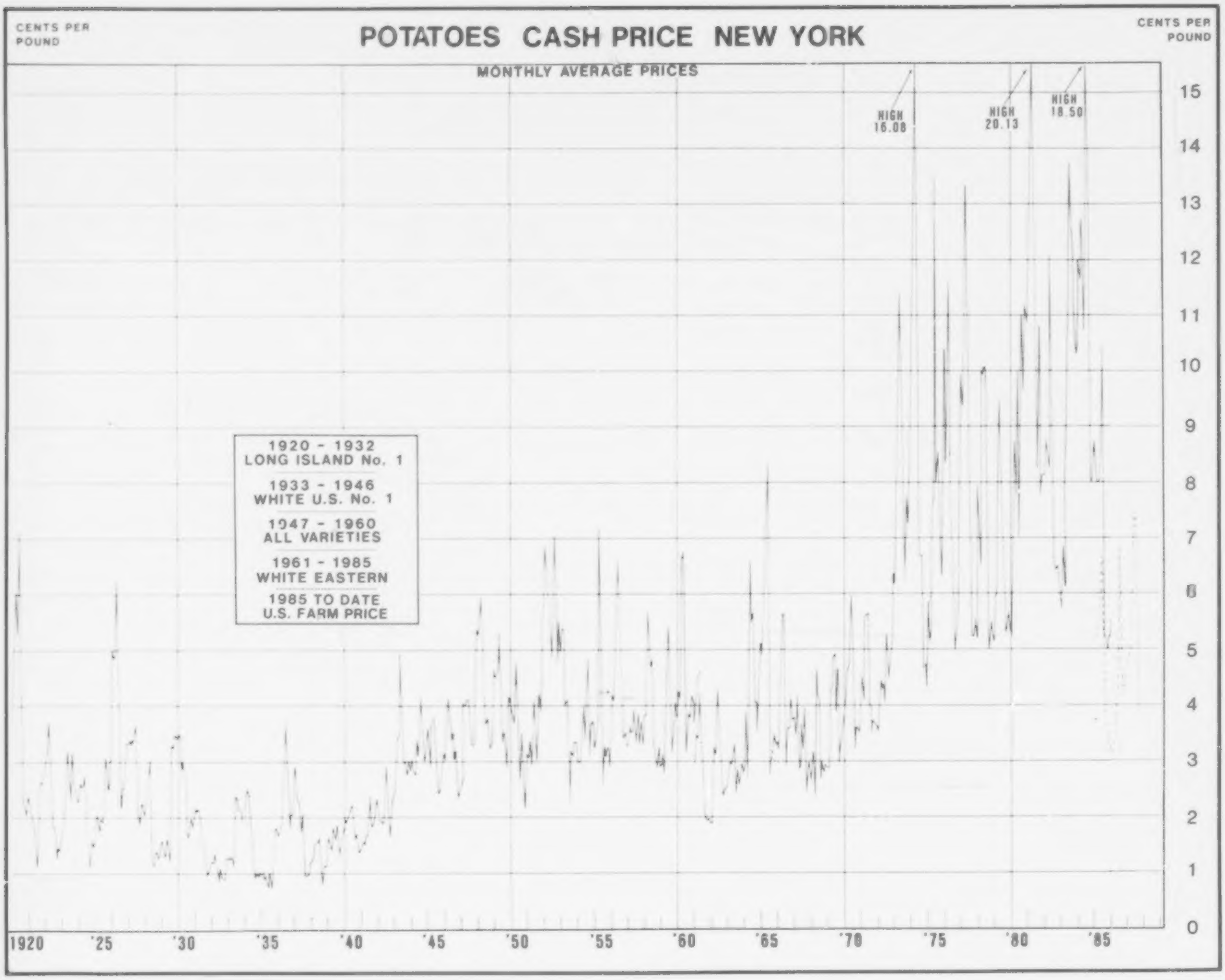
[1] Total quantity received and used for processing regardless of the state in which the potatoes were produced. Does not include quantities used for potato chips in Maine, Mich., Minn., N. Dak. or Wis. [2] Includes Maine grown potatoes only. [3] Mich., Minn., N. Dak. and Wis.
Source: Crop Reporting Board, U.S.D.A. T.524a



POTATOES CASH PRICE NEW YORK

MONTHLY AVERAGE PRICES

U.S. Cold Storage Stocks of All Frozen Potatoes (First of Month) In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1984	773.0	754.8	783.9	827.6	808.2	843.3	840.4	626.8	516.5	635.3	821.3	884.2
1985	892.3	900.0	943.4	1,003.3	1,023.6	1,081.6	1,058.4	828.2	735.4	861.4	1,014.2	1,020.2
1986	1,012.3	907.0	950.4	1,017.3	1,075.7	1,126.5	1,096.9	958.1	733.4	771.2	904.1	941.2
1987[1]	894.1	786.6	795.9	856.6	886.7	962.3	1,003.3	816.4	675.5	782.7	947.5	957.9

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.529

U.S. Average Price Received by Farmers for Potatoes In Dollars Per Cwt.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.[1]
1982	4.71	4.78	5.03	5.59	6.21	7.11	6.52	5.80	4.25	3.78	3.73	3.71	4.45
1983	3.53	3.69	4.07	4.65	5.52	5.33	6.36	7.03	4.94	4.14	4.87	5.46	5.82
1984	6.43	6.29	6.55	6.69	7.04	7.52	9.72	8.75	4.87	4.26	4.60	4.90	5.69
1985	5.22	5.31	5.40	5.80	6.44	6.67	5.84	3.83	3.56	3.51	3.46	3.26	3.92
1986[2]	3.12	3.35	3.50	3.99	4.39	4.75	6.83	5.71	4.40	4.24	4.64	4.73	4.94
1987[2]	4.82	4.91	5.28	5.52	7.45	7.43	6.89	5.10	3.91	3.82	3.70		

[1] Annual weighted average by sales. [2] Preliminary. *Source: Statistical Reporting Service, U.S.D.A.* T.530

POTATOES

High, Low & Closing Prices of May[1] Potato Futures at New York In Cents per Pound

Year of Delivery		Year Prior to Delivery											Delivery Year				Life of Delivery Range
		Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	
1982	High	—	11.87	11.49	10.25	10.22	10.86	10.99	10.80	10.50	8.77	8.77	8.99	9.39	8.25	—	11.87
	Low	—	11.05	9.70	9.40	8.85	8.93	10.02	9.96	8.14	8.17	7.72	7.75	8.22	7.40	—	7.40
	Close	—	11.14	9.85	10.21	9.04	10.50	10.20	10.11	8.37	8.48	7.85	8.64	8.27	7.80	—	—
1983	High	—	—	10.74	10.65	10.20	9.75	9.13	8.72	8.49	6.90	6.83	7.41	6.69	6.23	—	10.74
	Low	—	—	9.71	9.85	8.52	8.44	8.49	8.20	6.20	6.10	6.28	6.37	5.82	5.46	—	5.46
	Close	—	—	10.50	10.01	8.74	8.73	8.70	8.25	6.25	6.56	6.57	6.50	5.82	5.87	—	—
1984	High	—	—	—	—	5.00	5.39	6.10	6.25	5.25	5.85	6.48	6.28	5.75	5.97	5.12	6.48
	Low	—	—	—	—	4.17	4.40	5.20	5.67	4.55	5.30	5.71	5.68	5.38	5.24	4.53	4.17
	Close	—	—	—	—	4.40	5.30	5.74	6.00	4.75	5.85	6.38	5.62	5.75	5.29	4.53	—
1985	High	—	—	—	4.18	4.75	4.50	4.18	4.15	3.90	3.57	3.60	3.54	3.83	3.67	3.20	4.75
	Low	—	—	—	3.82	3.90	4.00	3.97	3.84	3.21	3.39	3.26	3.31	3.40	3.19	3.05	3.05
	Close	—	—	—	3.96	4.35	4.13	3.98	3.84	3.52	3.55	3.37	3.47	3.63	3.20	3.16	—
1986[1]	High	—	—	—	—	—	2.85	2.82	2.47	2.36	2.25	2.22	2.25	2.03	1.99	1.81	2.85
	Low	—	—	—	—	—	2.70	2.40	2.33	2.11	2.12	2.15	2.03	1.82	1.77	1.75	1.75
	Close	—	—	—	—	—	2.70	2.40	2.33	2.22	2.20	2.16	2.03	1.95	1.77	1.75	—
1987	High	4.08	4.25	4.25	4.28	4.20	4.98	5.20	5.81	6.10	5.80	5.32	5.97	5.97	5.37	7.90	7.90
	Low	4.00	4.08	4.13	3.75	3.87	3.84	4.57	5.10	5.30	4.91	4.81	5.28	5.16	4.92	5.18	3.75
	Close	4.08	4.20	4.25	3.88	3.97	4.60	5.05	5.77	5.52	5.07	5.25	5.90	5.16	5.27	7.60	—

[1] Prior to 1986 prices are for the April contract. *Source: N.Y. Mercantile Exchange*

T.528

Rapeseed

World rapeseed production in 1987/88 was projected by USDA to reach a record 22.2 million tonnes, up 13 percent from a year earlier. A huge increase in European Community (EC) output was responsible for most of the rise. The EC's output was estimated at 5.9 million tonnes, up 60 percent from a year earlier. EC acreage expanded, and yields climbed 11 percent. France's crop was up 80 percent, and large crops were seen in West Germany, Denmark, and the U.K. This combined to make the EC the world's second largest producer, surpassing Canada and India. The Canadian crop was put at 3.7 million tonnes, down 3 percent due to lower yields. The Chinese crop of 6 million tonnes represented a 3 percent increase from 1986/87 due to larger acreage. Rapeseed has become an important crop, with the year's production comprising 11 percent of world oilseed output.

With the larger world crop, trade in rapeseed was expected to expand. The USDA projected 1987/88 exports at 4.8 million tonnes, up 7 percent from a year earlier. The EC was a net exporter for the first time. And the Soviets bought rapeseed for the first time from the EC. Canadian exports were likely to decline, due to EC competition. Japan remained the largest net importer of rapeseed, and Mexico was a growing importer. Korea has begun to import small amounts.

The world rapeseed crush was projected by USDA at 19.7 million tonnes, a 7 percent increase from the previous season. Despite more active crushing, ending stocks of rapeseed were expected to total 2.1 million tonnes, up 77 percent from a year earlier. Most of these stocks were held by the EC.

Global rapeseed oil production in 1987/88 was estimated by USDA at 7.2 million tonnes, a 6 percent increase from the previous year. Rapeseed oil has surpassed sunseed oil as the third largest vegetable oil produced world-wide. It now comprises 14 percent of world oil output. The EC has become the world's second largest rape oil producer, surpassing Canada. China is the largest producer with 6 million tonnes. World exports of rapeseed oil continue to expand. The USDA projected 1987/88 exports at 1.6 million tonnes, 3 percent more than a year earlier. The major exporter of rapeseed oil was the EC, followed by Canada. The leading importer of rape oil was India.

The U.S. is importing much more rape oil, since the Food and Drug Administration indicated that low erucic acid rapeseed oil is generally safe for use in food. The development of rapeseed varieties that are low in erucic acid accounts for the rapid growth in rapeseed output. Canada produces only rapeseed with low erucic acid, while the EC through the use of price supports is switching to these varieties. World ending stocks of rapeseed oil are projected by USDA at 40,000 tonnes.

World rapeseed meal production was estimated by USDA at 11.8 million tonnes, a 7 percent increase from 1986/87. China is the major producer of rapeseed meal, followed by the EC. World consumption of rapeseed meal was placed at 11.7 million tonnes, 6 percent more than a year earlier. Use of rapeseed meal has been growing rapidly in the EC, Japan, and Mexico.

Trade in rapeseed meal was expected to decline in 1987/88 by 3 percent to 1.9 million tonnes. China is the world's largest exporter of rapeseed meal, but it was expected to reduce shipments by 14 percent. Canada, with a smaller rapeseed crop, was likely to reduce meal exports by about 20 percent. Ending stocks of rapeseed meal world-wide were projected by USDA at 330,000 tonnes, 20 percent less than a year earlier.

Futures Markets

Rapeseed futures are traded on the Winnipeg Commodity Exchange (WCE).

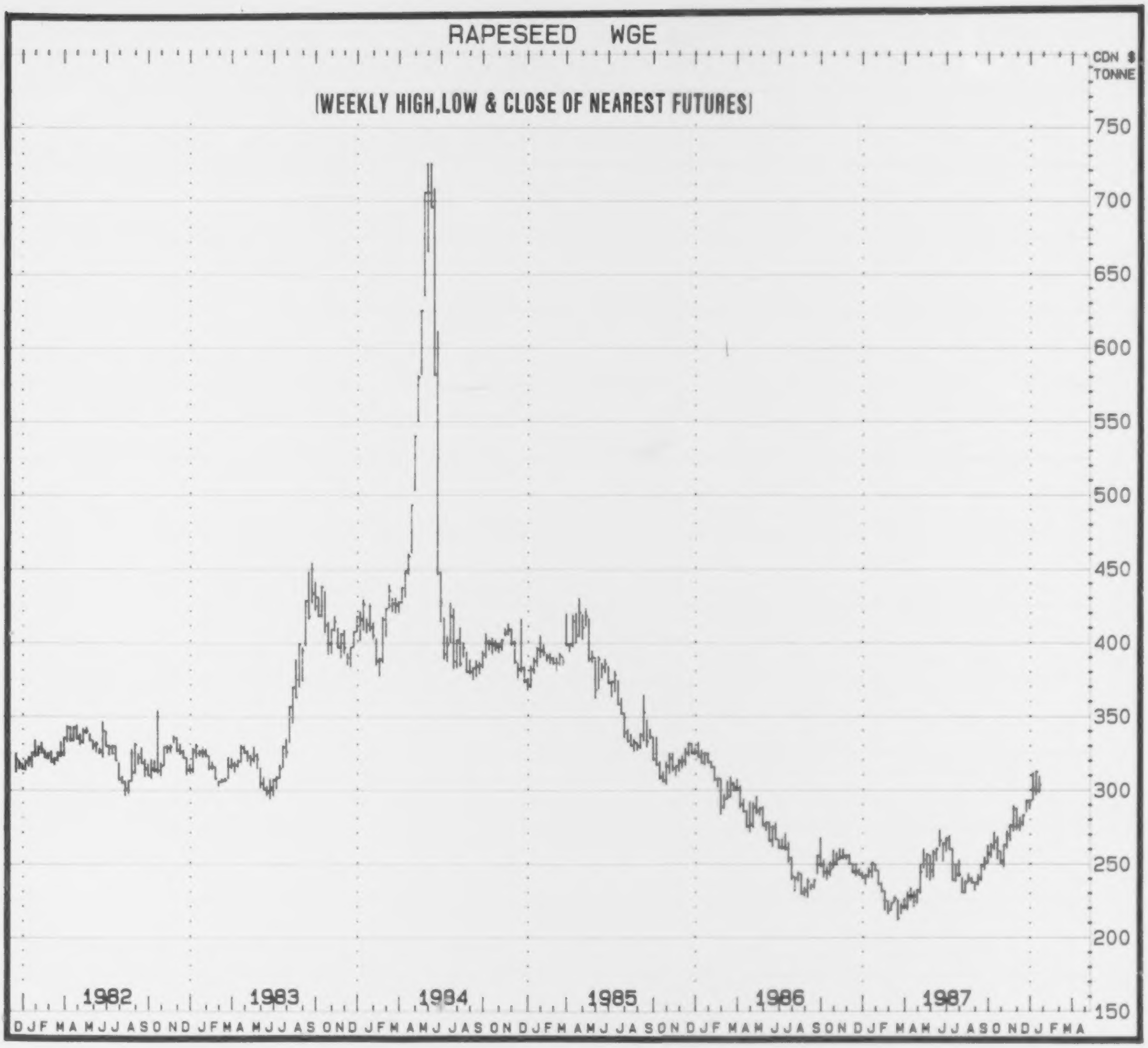
World Production of Rapeseed (In Thousands of Metric Tons)

Year[2]	Canada	China	Czecho-slovakia	Denmark	France	East Germany	West Germany	India	United Kingdom	Bangla-desh	Pakistan	Poland	Sweden	Yugo-slavia	World Total
1972	2,155	1,000	107	51	722	234	249	1,433		106	301	430	327		6,624
1973	1,300	1,050	117	92	661	246	242	1,808		98	287	512	339		7,001
1974	1,207	1,075	85	112	690	200	301	1,692		107	293	523	351		7,022
1975	1,163	1,090	115	115	532	250	194	2,300		110	305	726	327		7,989
1976	1,749			90	561							980	279		
1977	1,973	1,180	162	77	388	308	282	1,650	142	134	236	708	236	40	7,890
1978	3,497	1,868	166	91	568	318	331	1,860	155	137	248	691	289	73	10,721
1979	3,411	2,402	80	150	510	201	321	1,428	198	118	247	233	264	93	10,080
1980	2,484	2,384	214	225	1,103	277	377	2,002	300	122	252	572	285	68	11,104
1981	1,849	4,065	200	290	990	284	363	2,382	325	123	238	496	282	65	12,345
1982	2,225	5,656	178	335	1,147	307	535	2,207	580	120	246	433	320	79	14,804
1983	2,609	4,287	314	309	906	260	599	2,608	565	131	217	554	318	103	14,259
1984	3,428	4,205	300	474	1,305	305	662	3,030	925	140	234	911	327	124	16,906
1985	3,508	5,610	288	544	1,334	381	803	3,000	895	133	250	1,073	320	126	18,950
1986[1]	3,790	5,870	305	618	1,079	406	969	2,800	940	120	245	1,283	321	115	19,680
1987[3]	3,850	6,050	310	600	2,650	310	1,220	2,900	1,200	140	248	1,200	348	100	22,390

[1] Preliminary. [2] Harvest generally occurs in the first half of the calendar year given in all major producing countries except Canada. [3] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.*

T.533

RAPESEED



World Supply & Distribution of Rapeseed & Products In Thousands of Metric Tons

Crop Year	Rapeseed					Rapeseed Meal					Rapeseed Oil				
	Production	Exports	Imports	Crush	Ending Stocks	Production	Exports	Imports	Consumption	Ending Stocks	Production	Exports	Imports	Consumption	Ending Stocks
1979–80	10,081	2,102	2,403	8,714	1,708	5,206	520	640	5,316	149	3,365	643	571	3,295	159
1980–81	11,104	2,305	2,366	10,477	1,489	6,297	808	636	6,075	199	3,933	814	756	3,914	210
1981–82	12,345	2,142	2,216	11,959	911	7,331	845	683	7,182	186	4,383	824	775	4,404	140
1982–83	14,804	2,469	2,540	13,826	740	8,449	768	871	8,500	238	4,991	841	790	4,925	155
1983–84	14,263	2,537	2,704	13,312	647	8,130	1,198	1,303	8,206	267	4,856	984	980	4,827	180
1984–85	16,950	3,104	3,290	15,379	1,082	9,427	1,463	1,451	9,462	220	5,607	1,298	1,179	5,482	186
1985–86	18,548	3,620	3,610	16,790	1,340	10,140	1,725	1,650	10,000	285	6,150	1,320	1,166	5,880	309
1986–87[1]	19,680	4,490	4,720	18,330	1,180	11,060	2,000	2,120	11,070	410	6,740	1,620	1,440	6,490	390
1987–88[1]	22,390	4,900	4,990	19,720	2,000	11,870	1,970	1,840	11,810	330	7,180	1,670	1,640	7,130	410

[1] Preliminary. *Source: Foreign Agricultural Service, U.S.D.A.*

T.534a

High, Low & Closing Prices of June Rapeseed Futures in Winnipeg In Dollars per Tonne

Year of Delivery		Year Prior to Delivery								Delivery Year						Life of Delivery Range
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
1981	High	—	—	—	370.0	383.5	389.0	382.5	375.5	387.5	375.9	351.8	350.6	350.5	348.3	338.3	389.0
	Low	—	—	—	367.5	360.0	365.0	359.1	391.0	325.5	334.0	337.9	334.5	340.0	337.4	326.0	325.5
	Close	—	—	—	367.5	372.5	368.5	376.0	387.0	368.0	337.0	345.8	350.0	347.5	339.1	327.2	—
1982	High	—	—	—	396.0	391.0	378.3	371.8	366.5	353.0	344.0	340.8	333.5	342.8	340.8	331.7	396.0
	Low	—	—	—	384.0	375.5	355.0	358.8	341.6	334.6	331.0	328.0	319.8	327.3	329.7	321.0	319.8
	Close	—	—	—	391.0	375.5	360.3	365.4	344.8	335.1	334.5	332.7	327.0	334.1	332.7	330.0	—
1983	High	—	—	—	—	361.0	366.3	345.5	349.1	340.0	335.9	329.0	321.0	329.3	328.1	308.5	366.3
	Low	—	—	—	—	346.0	332.0	332.6	339.6	322.3	323.1	311.5	311.8	311.0	309.5	292.8	292.8
	Close	—	—	—	—	354.2	337.0	342.5	340.3	325.6	329.1	311.7	316.0	324.7	309.9	297.2	—
1984	High	—	—	—	359.5	434.0	467.4	452.5	435.2	424.5	431.4	412.0	426.5	502.2	724.0	724.0	724.0
	Low	—	—	—	330.0	364.5	415.5	409.0	406.1	397.3	406.5	382.9	403.0	426.0	507.5	577.0	330.0
	Close	—	—	—	350.5	423.6	447.5	409.7	407.8	421.5	410.2	403.5	426.5	502.2	704.0	577.0	—
1985	High	—	—	—	443.9	434.5	417.5	424.1	427.9	417.5	408.8	404.5	402.5	429.2	422.0	389.7	443.9
	Low	—	—	—	409.5	413.5	406.5	414.9	415.3	389.8	388.0	395.5	391.4	393.2	361.5	379.0	361.5
	Close	—	—	—	413.0	413.7	416.5	417.7	416.8	390.5	397.4	397.4	397.5	408.6	367.0	381.9	—
1986	High	422.5	424.0	409.5	400.4	370.0	357.0	351.5	315.5	347.3	346.7	329.8	316.7	306.5	295.0	277.5	424.0
	Low	421.5	402.5	388.0	364.5	348.0	342.5	328.4	325.5	330.7	328.6	296.1	298.8	271.0	274.0	261.3	261.3
	Close	421.5	403.2	388.0	368.5	352.8	342.5	328.4	333.6	342.2	329.5	300.6	305.7	291.5	275.8	267.7	—
1987	High	—	—	—	290.7	270.0	284.0	277.0	278.0	269.4	260.5	253.7	234.0	233.4	259.9	272.7	290.7
	Low	—	—	—	290.2	254.0	255.0	258.5	266.8	256.5	251.0	224.1	216.0	218.8	229.1	240.7	216.0
	Close	—	—	—	270.2	258.6	279.8	270.8	268.6	258.1	253.8	226.1	221.5	229.7	245.0	265.7	—
1988	High	—	—	—	285.0	262.5	273.6	284.0	300.4	307.0							
	Low	—	—	—	257.0	253.0	254.8	268.7	265.3	284.5							
	Close	—	—	—	265.2	257.3	270.5	269.6	292.8	306.2							

Source: Winnipeg Commodity Exchange T.536

Wholesale Price of Rapeseed Oil, Refined (Denatured), in Tanks at N.Y. In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1975	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	51.2	46.0	46.0	56.2
1976	46.0	46.0	46.0	46.0	46.0	46.0	46.0	44.2	39.0	39.0	39.0	39.0	43.5
1977	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
1978	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
1979	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0	39.0
1980	47.0	47.0	47.0	47.0	47.0	47.0	47.0	46.0	46.0	46.0	46.0	46.0	46.6
1981	56.4	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	59.0	58.8
1982	57.0	55.0	56.8	57.5	56.0	56.0	56.0	56.0	55.7	55.3	55.3	55.3	50.0
1983	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3	55.3
1984	55.3	55.3	55.3	55.3	55.5	55.5	55.2	55.2	55.2	55.2	55.2	55.2	55.3
1985	55.2	55.2	55.2	N.A.	N.A.	68.3	67.9	64.0	62.5	62.5	62.5	60.5	61.4
1986	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.5	60.5	60.5	60.5	60.1
1987	60.5	62.0	62.5	62.5	64.3	69.5	69.5	65.0	63.5				

Source: Economic Research Service, U.S.D.A. T.534

Month–End Open Interest of Rapeseed Futures in Winnipeg In 20–Tonne Units

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1978	9,288	11,435	11,869	11,908	14,442	14,300	17,778	20,456	17,960	18,672	16,707	15,299
1979	15,288	15,164	16,338	15,593	12,993	14,209	12,950	13,596	15,001	21,300	21,827	21,966
1980	15,718	17,516	13,392	14,285	17,722	17,254	17,126	17,108	18,827	22,036	21,911	20,504
1981	15,376	15,326	18,028	18,764	18,000	15,332	14,948	15,316	15,755	16,064	16,260	12,911
1982	13,532	14,970	9,952	12,230	15,997	11,554	12,623	16,948	13,904	15,503	17,992	20,555
1983	16,288	17,964	18,266	16,681	15,327	13,834	18,249	22,681	20,481	18,778	18,302	17,554
1984	14,170	16,807	13,980	13,743	15,220	14,025	14,348	15,822	17,967	15,893	18,046	19,361
1985	20,883	22,483	22,144	19,666	19,617	16,639	18,019	18,962	13,924	15,894	15,213	18,832
1986	15,083	21,017	19,412	21,161	23,154	17,457	17,478	24,836	22,087	32,220	28,293	27,989
1987	27,324	36,769	33,374	31,589	28,664	29,409	23,210	23,937	27,953	23,857	21,953	29,265

Source: Winnipeg Commodity Exchange T.535

Rayon and Other Synthetic Fibers

World Production of Rayon &/or Acetate Filament Yarn & Monofilaments In Thousands of Metric Tons

Year	United States	Bel./Netherlands	Brazil	Canada	France	W. Germany	E. Germany	Un. Kingdom	Italy	Japan	India	Poland	Spain	China	USSR	World Total
1979	169.4	36.1	24.4	14.1	18.5	58.1	35.0	59.2	38.4	114.3	60.5	27.2	12.6	68.0	298.0	1,176
1980	161.3	37.4	26.0	14.0	16.4	65.2	36.5	36.7	36.6	119.3	57.7	25.4	12.8	75.0	305.0	1,161
1981	138.6	38.3	21.0	13.5	11.0	65.0	37.0	27.0	35.1	118.7	55.9	19.5	12.6	80.0	300.0	1,104
1982	103.6	37.1	20.8	9.5	8.6	61.5	34.0	24.0	31.6	120.5	48.6	19.3	11.3	80.0	294.4	1,023
1983	119.7	41.1	18.4	10.0	8.4	59.0	35.0	25.0	29.3	116.8	46.2	18.2	10.5	85.0	300.0	1,040
1984	108.4	41.1	17.7	10.0	7.5	61.0	35.2	21.0	30.6	110.8	41.7	19.5	7.2	87.0	307.0	1,029
1985[1]	93.0	42.0	20.1	8.0	7.0	64.0	35.4	19.0	30.2	104.6	46.9	20.5	7.5	87.0	312.0	1,026
1986[2]	97.5		16.8	8.8			35.6			106.7	49.8	20.7		87.0	316.0	1,036

[1] Preliminary. [2] Estimate. *Source: Textile Organon* T.537

World Production of Rayon &/or Acetate Staple & Tow In Thousands of Metric Tons

Year	United States	Austria	China	Czechoslovakia	France	W. Germany	E. Germany	Un. Kingdom	Italy	Japan	Poland	Spain	Sweden	India	USSR	World Total
1979	252.4	98.8	85.0	36.0	58.9	50.0	130.0	139.2	39.0	290.4	56.6	45.3	36.9	92.2	337.0	2,195
1980	204.3	100.6	95.0	34.9	49.6	46.0	132.0	109.3	27.5	278.0	61.0	40.1	34.9	74.7	345.0	2,081
1981	210.7	107.9	105.0	36.0	42.9	50.0	132.0	102.4	24.4	273.5	44.4	37.8	34.7	94.5	345.5	2,100
1982	161.0	100.8	105.0	35.5	36.9	50.0	127.8	89.2	14.2	258.8	45.1	31.8	38.0	52.8	340.5	1,922
1983	170.6	109.7	100.0	37.9	29.5	55.0	130.1	115.2	0	271.0	51.2	21.5	39.3	69.9	345.0	1,989
1984	176.4	109.0	108.0	38.6	19.0	55.0	135.0	106.2	0	266.6	56.0	26.1	40.1	100.1	345.0	2,065
1985[1]	160.1	109.0	112.0	39.6	15.0	55.0	132.4	60.2	0	283.3	60.0	30.0	33.0	95.0	350.0	2,006
1986[2]	183.3		130.0	40.5			91.5			254.2	63.0			86.3	350.0	1,959

[1] Preliminary. [2] Estimate. *Source: Textile Organon* T.538

World[5] Production of Non-Cellulosic Man-Made Fibers (Except Olefin) In Thousands of Metric Tons

	United States																
		Non-Cellulose Fiber[2]															
Year	Text. Glass Fiber[1]	Yarn[3]	Staple[4]	Total	Total[5]	Canada	China	France	W. Germany	Italy Malta	Taiwan	Japan	Korea	Benelux	USSR	United Kingdom	World Total
1979	460	1,595	1,889	3,484	3,944	121.6	164.0	224.0	759.5	360.2	521.3	1,363	477.3	135.6	476.0	381.1	10,601
1980	393	1,412	1,831	3,243	3,635	122.0	248.0	192.0	720.1	354.8	557.8	1,357	536.4	104.3	550.0	287.6	10,476
1981	472	1,439	1,837	3,276	3,748	105.9	347.0	201.2	752.2	435.3	587.0	1,329	610.4	105.7	572.8	249.3	10,827
1982	408	1,121	1,481	2,602	3,011	97.0	384.0	190.1	669.0	428.7	630.9	1,302	612.5	89.8	587.8	204.3	10,146
1983	530	1,294	1,715	3,009	3,539	112.3	409.4	198.3	732.0	455.1	737.4	1,318	664.1	83.2	622.0	227.7	11,116
1984	632	1,260	1,677	2,937	3,569	128.6	563.4	193.8	731.0	524.4	865.9	1,369	746.5	88.5	664.3	237.5	11,848
1985[6]	610	1,286	1,578	2,864	3,474	129.5	750.0	184.7	762.0	558.0	1,024.0	1,403	811.6	100.0	702.8	239.5	12,558
1986[7]	630	1,260	1,659	2,919	3,549	134.7	831.0	167.2	746.0	569.0	1,232.0	1,361	862.0	107.0	746.8	217.0	13,113

[1] Textile glass fiber of all types, including some staple. [2] Acrylic fiber, nylon, polyester, saran, etc. [3] Includes monofilaments as well as some saran staple. [4] Includes tow, but does not include some saran staple. [5] The textile glass fiber data are included in the U.S. total & excluded from the rest of the world data. [6] Preliminary. [7] Estimate. *Source: Textile Organon* T.539

Man-Made Fiber Production in the United States In Millions of Pounds

	Rayon & Acetate															
	Rayon Yarn				Staple & Tow				Non-Cellulosic Fiber						Producers' Waste Shipments	
Year	Indust.	Textile	Acet. Yarn	Total Yarn	Rayon	Acetate	Total	Total	Yarn	Staple	Total	Total Ray. & Acet. & Non-Cel.	Textile Glass Fiber	Total Man-made Fiber	Rayon	Non-Cell.
1979	41.7	15.1	316.6	373.4	549.4	7.0	556.4	929.8	4,154.3	4,282.3	8,436.6	9,336.4	1,014.4	10,380.8	17.2	238.6
1980	32.2	15.0	308.5	355.7	443.3	7.0	450.3	806.0	3,744.3	4,148.2	7,892.5	8,698.5	867.3	9,565.8	13.5	170.2
1981	33.4	15.1	257.0	305.5	460.6	4.0	464.6	770.1	3,814.8	4,191.1	8,005.9	8,776.0	1,041.1	9,817.1	15.3	174.2
1982	20.8	12.4	195.2	228.4	355.0	1.0	356.0	584.4	3,057.4	3,402.5	6,459.9	7,044.3	899.2	7,943.5	10.7	173.2
1983	25.0	11.2	227.6	263.8	374.8	1.4	376.2	640.0	3,568.0	3,971.0	7,538	8,178	1,167.2	9,335.9	9.4	214.1
1984	28.8	12.1	198.2	239.1	389.2	.4	389.6	628.7	3,524	3,947	7,472	8,100	1,394.0	9,494	11.4	216.9
1985	N.A.			204.6	352.7	.5	353.2	557.8	3,790	3,773	7,564	8,121	N.A.	N.A.	8.8	260.2
1986[1]	N.A.			214.8	403.7	.5	404.2	619.0	3,836	3,992	7,828	8,447	N.A.	N.A.	10.4	261.6

[1] Preliminary. *Source: Textile Organon* T.543

U.S. Rayon and Acetate Distribution In Millions of Pounds

	Yarn & Monofilaments								Staple & Tow & Fiber Fill						
	Producers' Shipments								Producers' Shipments						
	To Domestic Consumers								Domestic Consumers						
Year	Industrial	Textile	Acetate	Total	Export	Total	Import	Domestic Consump.	Rayon	Acetate	Total	Export	Total	Import	Domestic Consump.
1982	30.1		169.0	199.1	29.8	228.9	7.0	206.1	293.7	1.0	294.7	66.5	361.2	13.4	308.1
1983	35.5		197.6	233.1	28.2	261.3	8.7	241.8	333.5	1.4	334.9	43.9	378.8	13.6	348.5
1984	38.2		180.1	218.3	18.2	236.5	10.0	228.3	331.9	.4	332.3	52.1	384.4	17.0	349.3
1985	N.A.			187.1	23.0	210.1	13.9	201.0	323.7	.5	324.2	35.0	359.2	12.3	336.5
1986[1]				192.1	20.2	212.3	17.0	209.1	373.0	.5	373.5	30.8	404.3	17.4	390.9

[1] Preliminary. *Source: Textile Organon* T.540

U.S. Domestic Shipments of Synthetic Fibers In Millions of Pounds

	Yarn & Monofilaments							Staple & Tow						
	Cellulosic			Non-Cellulosic				Non-Cellulosic						
Year	Rayon	Acetate	Total	Nylon	Olefin[2]	Polyester & Other	Total[3]	Rayon	Nylon	Acrylic & Mod-Acrylic	Olefin & Vinyon	Polyester	Total	Textile Glass Fiber
1982	30.1	169.0	199.1	1,166	577.0	1,135	2,894	293.7	673.3	457.9	138.9	1,768	3,038	875.6
1983	35.5	197.6	233.1	1,392	698.6	1,294	3,385	333.5	897.1	492.2	183.4	2,099	3,672	1,166.1
1984	38.2	180.1	218.3	1,438	725.6	1,145	3,309	331.9	814.4	446.7	240.9	1,992	3,494	1,273.8
1985	N.A.		187.1	1,417	937.6	1,204	3,559	323.7	830.3	458.7	279.7	1,873	3,441	N.A.
1986[1]	N.A.		192.1	1,480	1,049	1,092	3,621	373.0	894.9	531.2	312.7	1,999	3,737	N.A.

[1] Preliminary. [2] Includes film fiber. [3] Includes Saran & Spandex. *Source: Textile Organon* T.541

U.S. Mill Consumption of Fiber & Products & Per Capita Consumption

	Mill Consumption (Million Pounds)											Per Capita[4] Consumption (Pounds)				
Year	Yarn & Monofilaments	Staple & Tow	Total R & A.[2]	Noncellulosic Fiber	Textile Glass Fiber	Waste	Total Man-made[3]	Cotton	Wool	Silk	Grand Total	Non-cell. Man-made Fibers	Rayon & Acetate	Cotton	Wool	Total All Fibers
1982	206.1	308.1	514.2	6,131	875.6	183.9	6,654	2,479	129.5	2.0	9,264	26.9	2.2	13.5	.9	40.5
1983	241.8	348.5	590.3	7,396	1,166.1	223.5	7,995	2,796	162.5	2.0	10,955	32.4	2.5	15.9	1.2	47.5
1984	228.3	349.3	577.6	7,202	1,273.8	228.3	7,790	2,668	163.2	3.0	10,624	31.2	2.4	16.8	1.4	45.7
1985	201.0	336.5	537.5	7,490	N.A.	269.0	8,036	2,796	134.7	3.0	10,969	31.9	2.3	17.7	1.5	46.5
1986[1]	209.1	390.9	600.0	7,846	N.A.	272.0	8,454	3,298	164.5	3.0	11,916			20.2	1.6	

[1] Preliminary. [2] Rayon and acetate. [3] Man-made fiber data include only glass fiber for textile end uses. [4] Mill consumption adjusted for raw fiber equivalent of net U.S. trade in textile mfg. *Source: Textile Economics Bureau; Economic Research Service, U.S.D.A.* T.542

United States Imports of Manmade Fiber Manufactures In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	53.18	48.07	47.74	40.14	67.85	91.93	77.34	100.05	82.75	70.14	68.76	59.16	807.10
1983	79.98	71.92	76.53	73.20	86.99	105.55	98.14	108.25	98.34	106.84	85.83	77.93	1,069.5
1984	100.34	118.86	110.21	110.50	114.35	122.45	169.47	127.72	114.80	98.79	80.51	74.56	1,342.6
1985	96.34	116.29	116.16	90.56	122.22	123.98	136.98	118.98	139.60	132.32	122.32	114.33	1,491.0
1986	142.31	130.04	132.47	125.18	147.02	159.71	179.65	162.82	135.95	135.27	134.26	118.27	1,703.0
1987	136.8	149.9	137.7	148.1	162.0	178.3	190.7	174.1	145.6				

Source: Department of Commerce T.544

Producer Price Index of Gray Synthetic Broadwovens (Dec. 1975 = 100)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1982	146.2	145.2	144.6	144.2	143.8	143.9	143.3	143.0	142.3	142.7	142.3	142.5	143.7
1983	144.9	144.3	144.7	145.5	146.1	146.3	146.5	147.4	147.7	149.3	151.7	151.0	147.0
1984	148.8	151.2	152.3	152.4	153.5	153.3	153.3	153.6	151.9	152.5	151.0	150.1	152.1
1985	149.4	148.1	147.3	147.0	148.0	147.2	146.4	146.1	146.2	146.6	147.0	147.1	147.2
1986[1]	147.1	147.3	147.2	147.9	147.2	147.4	147.5	145.9	144.1	145.1	145.0	145.1	146.3
1987[1]	146.4	146.4	146.9	148.5	149.3	151.3	154.0	154.4	156.1	155.8			

[1] Preliminary. *Source: Bureau of Labor Statistics.* (0337-03) T.545

Rice

World rough rice production in 1987/88 was pegged at 442.4 million tonnes, down 5 percent from the previous season and the smallest since 1982/83. A rise in Chinese output was more than offset by drought-induced production declines in India, Bangladesh, and Thailand. Output in China, the leading producer, was forecast at 175 million tonnes, up 2 percent from the previous season. In India, delayed monsoons were expected to cause production to fall 20 percent to 72 million tonnes. And the crop in Thailand, the major U.S. competitor in the rice market, was pegged at 15 million tonnes, 17 percent below the previous season.

World milled rice trade was expected to shrink 17 percent in calendar year 1988 to 10.4 million tonnes, because of limited exporter availability and higher prices. Thai exports were due to fall to 2 million tonnes from 3.9 million the season before. And U.S. exports were forecast to rise to 2.6 million tonnes from 2.3 million in 1987. Global stocks were expected to be drawn down to 16.8 million tonnes at the end of 1988, versus 24.3 million the year before.

Higher incomes, increased domestic production, and low import prices have allowed consumers in many countries, particularly China, India, and South Korea, to substitute rice for coarse grains. Middle Eastern and African countries have more than doubled rice imports since the mid-1970s; most have taken advantage of low prices, attractive credit terms, and food aid programs to maintain import and consumption levels.

The outlook for U.S. rice is for large supplies to be gradually drawn down by rising demand. The Food Security Act of 1985 was designed in part to bring U.S. rice supply and use into closer balance. Implementation of the rice marketing loan in April 1986 dramatically and immediately lowered prices to levels where U.S. rice could again be sold on world markets. Exports account for over 50 percent of total demand.

In the 1987 rice program, the target price was $11.66/cwt. Producers were required to reduce their rice plantings by 35 percent of their rice acreage base. Recently, a growing share of U.S. rice has been consumed domestically. Over the past decade, rice benefited from a trend in U.S. diets toward more grain-based foods. Also, increases in the Asian and Hispanic segments of the U.S. population contributed to consumption gains.

The Arkansas-Mississippi rice milling area was the major supplier to the direct food use markets (stores and restaurants). The Texas mill area was second. Long grain rice had a 75-percent market share, and medium grain had 25 percent. The second-largest outlet, beer brewing, accounted for 25 percent of total domestic rice use. Breakfast cereals dominate processed food uses. Medium grain rice was the most common type used by breakfast cereal manufacturers.

Futures Market

Rough rice futures are traded on the Chicago Rice and Cotton Exchange.

World Rice[3] Supply & Distribution In Millions of Metric Tons

	Production			Exports			Imports			Utilization			Stocks (End)		
Year	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total	U.S.	Non-U.S.	Total
1984	4.5	449.3	453.8	2.1	10.4	12.6	—	12.6	12.6	1.8	306.8	308.6	1.5	15.7	17.2
1985	6.3	462.2	468.4	1.9	9.6	11.5	—	11.5	11.5	1.9	311.9	313.8	2.1	20.2	22.3
1986	6.1	464.3	470.4	2.4	10.4	12.8	—	12.8	12.8	2.1	313.9	316.1	2.5	23.8	26.3
1987[1]	6.1	459.7	465.8	2.3	10.2	12.5	—	12.5	12.5	2.4	316.8	319.1	1.8	22.6	24.3
1988[2]	5.9	436.5	442.4	2.6	7.8	10.4	—	10.4	10.4	2.5	306.6	309.1	.9	16.0	16.9

[1] Preliminary. [2] Forecast. [3] Production is on rough basis; the rest are on milled basis. *Source: Foreign Agricultural Service, U.S.D.A.* T.547a

World Production of Rough Rice In Millions of Metric Tons

Crop Year	Brazil	Burma	China	Vietnam	India	Japan	Indonesia	Rep. of Korea	Bangladesh	Philippines	Pakistan	Taiwan	Thailand	United States	World Total
1984–5	9.0	14.3	178.3	15.4	87.5	14.8	38.1	8.0	21.9	8.2	5.0	2.9	19.9	6.3	468.4
1985–6	10.3	14.3	168.6	15.0	96.2	14.6	39.0	7.9	22.6	8.7	4.4	2.9	19.7	6.1	470.4
1986–7[1]	10.5	12.5	172.2		90.0	14.6	39.0	7.9	23.1		5.3		18.5	6.1	465.8
1987–8[2]	9.7	13.5	175.0		72.0	13.3	38.7	7.6	22.1		4.7		15.0	5.9	442.4

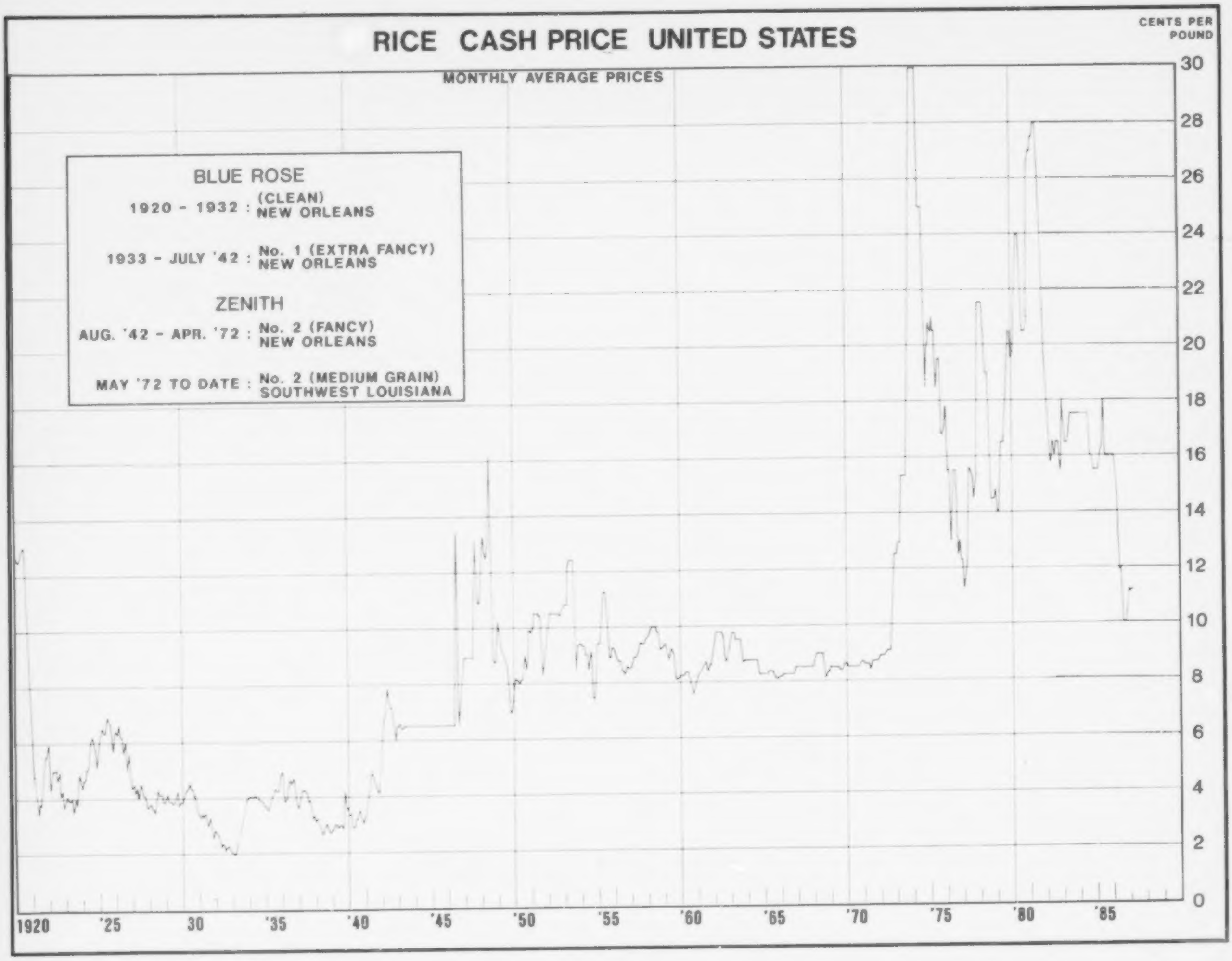
[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.547

World Exports of Rice (Milled Basis), by Country of Origin In Thousands of Metric Tons

Year	Australia	Argentina	Guyana	Burma	P.R. China	Egypt (U.A.R.)	Uruguay	Pakistan	EC-12	Japan	India	Taiwan	Thailand	United States	World Total
1984	370	115	47	727	1,168	50	155	1,050	763	102	200	210	4,528	2,129	12,558
1985	450	165	35	450	1,010	16	231	962	885	0	200	40	3,993	1,906	11,475
1986[1]	400	150	35	636	950	92	246	1,146	1,136	0	200	169	4,338	2,401	12,752
1987[2]	350	150	35	500	1,000	70	230	1,400	1,045	0	200	225	4,200	2,300	12,536

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.552

RICE CASH PRICE UNITED STATES



Average Wholesale Price of Rice No. 2 (Medium Grain)[1] Southwest Louisiana Dollars per cwt. bagged

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average
1979–0	19.0	20.0	20.5	20.5	19.5	20.0	22.0	23.5	24.0	24.0	22.0	21.0	21.3
1980–1	20.5	20.8	21.6	24.4	26.4	27.0	27.1	27.5	27.6	28.0	28.0	27.8	25.6
1981–2	26.4	24.2	22.9	21.2	20.0	18.8	17.8	16.1	16.0	16.4	16.2	16.0	19.3
1982–3	16.5	16.5	16.5	16.7	17.8	17.3	16.5	16.5	16.5	17.1	17.5	17.5	16.9
1983–4	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
1984–5	16.0	16.0	15.5	15.5	15.5	15.5	15.5	16.0	16.2	16.3	18.0	16.2	16.0
1985–6	16.0	16.0	16.0	16.0	16.0	16.0	15.67	15.5	14.57	11.92	12.0	11.33	14.75
1986–7[2]	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.49	11.25	11.13	11.22	11.18	10.44

[1] U.S. No. 2—Broken not to exceed 4%. [2] Preliminary. *Source: Bureau of Labor Statistics (0213–0101)* T.549

U.S. Rice (Rough) Production by Type and Variety In Thousands of Cwt.

Year	Long Grain	Medium Grain	Short Grain	Total
1980	86,851	51,407	7,892	146,150
1981	110,426	61,497	10,819	182,742
1982	93,424	51,342	8,871	153,637
1983	64,318	27,388	8,014	99,720
1984	96,029	35,304	7,477	138,810
1985	100,367	28,464	6,082	134,913
1986	97,833	32,239	4,344	134,416
1987[1]	93,591	31,147	4,678	129,416

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.548

RICE

Salient Statistics of Rice, Rough & Milled (Rough Equivalent) in the United States In Thousands of Cwt.

Year Beginning August	Supply				Distribution					Government Support Program					
					Domestic					Owned By CCC Aug. 1	Total Under Price Support	Loan Rate			
												Rough			
	Stocks Aug. 1	Production	Imports[2]	Total Supply	Food[3]	Industry[4]	Seed	Total	Exports			Long	Med & Short	Milled Long	All Classes
1982–3	48,987	153,637	—	203,100	37,300	13,500	3,200	62,900	68,900	22,300	65,800	8.86	7.74	14.75	8.14
1983–4	71,440	99,720	—	171,900	33,200	12,800	3,300	54,900	70,300	25,000	40,000	9.12	7.58	14.96	8.14
1984–5	46,909	138,810	—	187,300	35,800	13,900	2,800	52,500	62,100	44,300	57,800	9.12	6.80	14.96	8.00
1985–6[1]	64,700	134,913	—	201,800	45,600	14,100	2,600	62,300	58,700	62,000	73,600	8.86	6.60	14.53	8.00
1986–7[5]	77,300	134,416	—	214,300	49,200	15,000	2,600	66,800	85,400			7.57	6.45	12.44	7.20
1987–8[5]	55,100	129,416	—	184,500	52,000	16,000	3,000	71,000	80,000			7.04	6.48	11.36	6.84

[1] Preliminary. [2] Consists mostly of broken rice. [3] Includes shipments to territories and military food use. [4] Primarily for beer-production. [5] Projected. *Source: Agricultural Marketing Service, U.S.D.A.* T.551

Acreage, Yield, Production, and Prices of Rice in the United States

Crop Year	Acreage Harvested (1,000 Acres)			Yield Per Harvested Acre (In Lbs.)		Production 1,000 Cwt.			Farm Value of Production $1,000	Wholesale Prices ($ Per Cwt.)		$ Per Tonne Milled Rice Average C.I.F. At Rotterdam		
	Southern States	California	United States	California	United States	Southern States	California	United States		Arkansas[2]	Houston[3]	U.S. No. 2[4]	Thai "A"[5]	Thai "B"[5]
1982–3	2,727	535	3,262	6,700	4,710	117,740	35,848	153,637	1,246,608	16.80	18.70	488	367	336
1983–4	1,841	328	2,169	7,040	4,598	76,631	23,089	99,720	874,004	17.35	19.88	527	369	328
1984–5	2,352	450	2,802	7,120	4,954	106,750	32,060	138,810	1,118,809	16.23	18.69	495	300	267
1985–6	2,102	390	2,492	7,300	5,437	106,445	28,468	134,913	914,202	15.22	16.84	418	276	236
1986–7[1]	2,020	360	2,380	7,700	5,648	106,689	27,727	134,416	510,800	12.22	11.59	260	279	232
1987–8[1]	1,966	367	2,333	7,500	5,547	101,891	27,525	129,416	841,200					

[1] Preliminary. [2] F.O.B. mills, Arkansas, medium. [3] Houston, Texas (long grain). [4] Milled, 4%, Bagged. [5] SWR 100% Bagged. *Source: Economic Research Service, U.S.D.A.* T.550

U.S. Exports of Milled Rice[1] by Country of Destination In Thousands of Metric Tons

Crop Year	Belg.-Lux.	South Africa	Canada	United Kingd.	South Korea	Nigeria	Indonesia	Italy	Bangladesh	Liberia	Saudi Arabia	Switzerland	Iraq	Iran	Total Exports
1980–1	101.6	112.4	93.3	19.3	1,048.8	283.2	138.8	11.5	—	85.1	257.0	69.5	71.4	—	3,028
1981–2	118.4	114.1	101.0	30.5	281.6	412.8	15.8	201.4	22.6	88.4	277.7	91.1	221.1	147.2	2,682
1982–3	114.9	109.3	100.6	26.2	187.8	168.7	63.4	11.6	67.3	91.3	279.1	57.2	279.2	—	2,219
1983–4	135.3	154.5	94.1	4.2	98.9	82.7	81.6	51.0	55.7	83.5	285.7	65.1	274.8	0	1,644
1984–5[2]	133.1	83.6	97.6	9.4	.1	.5	3.0		80.3	52.5	240.8	55.4	380.4	0	1,404

[1] No adjustment of brown & parboiled rice has been made; treated as milled rice. [2] Preliminary. *Source: Bureau of the Census, Dept. of Commerce* T.553

Exports of Rice from the United States In Millions of Pounds[1] (Clean Basis)

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Total
1982–3	809	320	431	199	307	241	316	490	446	438	550	360	4,907
1983–4	488	624	460	378	359	299	220	462	432	420	431	314	4,587
1984–5	384	567	331	343	307	236	292	411	315	355	296	336	4,173
1985–6	380	489	417	290	283	277	163	249	208	212	450	603	4,021
1986–7	778	835	565	446	323	343	411	365	399	560	254	582	5,861
1987–8	474	439											

[1] 162 pounds rough—100 pounds clean. *Source: Department of Commerce* T.554

Average Price Received by Farmers for Rice (Rough) in the U.S. In Dollars Per 100 Pounds (Cwt.)

Year	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Average[1]
1982–3	7.31	7.75	7.73	7.78	8.06	8.05	8.26	7.99	8.23	8.23	7.88	7.95	7.91
1983–4	8.41	8.48	8.80	8.80	8.66	8.57	8.85	8.63	8.49	8.24	8.20	8.18	8.57
1984–5	8.22	8.17	8.08	8.13	8.08	8.09	7.72	8.17	8.20	7.91	7.83	7.54	8.04
1985–6	7.86	7.55	7.73	7.84	7.71	7.90	7.86	7.60	5.32	4.52	4.04	3.86	6.53
1986–7[2]	3.95	3.82	3.89	3.91	3.76	3.61	3.80	3.68	3.64	3.74	3.68	3.65	3.80
1987–8[2]	3.74	4.28	4.58										

[1] Weighted average by sales. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.555

Rubber

U.S. synthetic rubber manufacturers are divisions or subsidiaries of major rubber product manufacturers, chemical companies, and oil companies. Synthetic rubber is produced primarily from chemicals derived from crude oil and natural gas. They can be grouped into two major categories: general-purpose elastomers and specialty elastomers.

Shipments of synthetic rubber are expected to show little or no growth in the 1988-92 period. Long-term demand for general-purpose synthetic rubber will continue to be the primary determinant of the industry's growth. With U.S. tire production waning, sales of general-purpose rubber are expected to suffer accordingly. Specialty synthetic rubber demand is expected to exhibit substantial growth in many areas, particularly in transportation applications which require materials that can withstand high operating temperatures. Production of alloys of rubber and plastics and the development of new high-tech reinforced rubber products will eventually lead to a different product mix for the industry.

The weaker dollar, if sustained, should help boost U.S. exports of synthetic rubber and retard import growth. Canada, France, Germany, Mexico, and Japan are expected to continue as major suppliers of U.S. imports of synthetic rubber. And Canada, Brazil, Belgium, Luxembourg, and Germany will be the major destinations for U.S. exports.

The U.S. tire and inner tube industry--the major user--is a slow growth industry highly dependent on motor vehicle production and use. Even though numbers of registered motor vehicles have increased steadily in the U.S., tire production has fluctuated between 180 million and 200 million for several years. The industry has been adversely affected by a combination of factors, including: (1) stagnant motor vehicle production and, hence, stagnant original equipment tire sales; (2) longer-lasting radial tires, which have extended the tire replacement cycle from every two years to every three to four years; (3) growing imports of motor vehicles with foreign-made tires; and (4) rising tire imports. Overall, tire demand is expected to grow at a 1 to 2 percent annual rate over the next several years.

Production of motor vehicle tires in 1988 and into the 1990s was projected to rise by 2 percent annually. Although imports of motor vehicles were expected to continue to replace domestic production, the effect on U.S. tire sales would be partially offset by an expected increase in mileage driven, which would increase tire replacement.

Rapid growth in single-ply roofing prompted entry into that business by nearly all of the major tire companies. Molded rubber products were expected to have favorable market growth.

Demand for hose and belting depends on industrial activity in general and motor vehicle production and use in particular. The hose and belting industry consists of about 150 companies that produce a variety of products for industries ranging from transportation and construction to mining and agriculture. The industry is dominated by large producers, with the top eight companies accounting for about two-thirds of total shipments. U.S. imports of foreign machinery and equipment containing foreign hose and belting were expected to continue to be substantial.

The U.S. produces no natural rubber, but is the world's largest consumer, followed by Japan. Natural rubber is often used in conjuction with synthetics. Radial tires, for example, use a larger percentage of natural rubber than bias-ply tires. Malaysia is the largest natural rubber producer, generally accounting for about one-third of the world's production. Indonesia is second with about 25 percent of the world total, followed by Thailand. In effect, those three Southeast Asian nations produce about 75 percent of the world's rubber. This percentage is not apt to change. Natural rubber production in the mid-1980s tended to stagnate in the neighborhood of 4.4 million tonnes, following a ten-year period during which world production rose steadily.

World natural rubber prices generally trended lower during much of the 1980s, hitting post World War II lows under 40 cents/lb., basis smoked sheets, New York, in the mid-1980s. Prices have since recovered, but not by much. The average 1986 price was about 43 cents; it was estimated to be about 5 to 10 cents higher during 1987. Seasonally, the New York spot price tends to show greater strength during the latter part of the calendar year, although the seasonal pattern lacks strong conviction.

Futures Markets

Rubber futures are listed for trading in Kuala Lumpur, Tokyo, and Singapore.

U.S. Imports of Natural Rubber (Includes Latex & Guayule) In Thousands of Long Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total[1]
1981	30.06	86.64	53.38	67.62	66.36	50.47	41.59	43.40	62.76	69.42	56.23	49.13	662.4
1982	50.99	59.33	45.71	53.86	56.19	63.39	38.67	54.35	40.60	54.36	51.37	49.45	618.3
1983	33.01	49.63	48.54	62.11	63.44	65.20	50.41	31.90	44.22	67.83	71.06	54.71	642.1
1984	87.84	57.82	75.45	69.18	70.25	41.45	73.81	56.23	67.46	61.95	62.36	62.21	786.0
1985[2]	71.64	71.68	88.04	63.98	84.66	48.09	59.97	45.30	40.73	69.44	71.81	64.49	779.8
1986[2]	63.64	70.32	76.62	83.12	47.64	54.01	68.96	44.47	62.91	72.34	53.13	55.83	753.0
1987[2]	55.0	89.9	80.7	32.7	63.6	58.0	63.2	46.8	58.5				

[1] Includes latex and guayule. [2] Preliminary. *Source: Department of Commerce* T.560

RUBBER

World Rubber Production[1] In Thousands of Metric Tons

	Natural										Synthetic						
Year	Sri Lanka	India	Indonesia	Malaysia	Philippines	Thailand	Liberia	Brazil	China	World Total	Canada	West Germany	Japan	United States	United Kingdom	USSR	World Total
1978	155.7	133.0	902.5	1,582	56.6	467.0	72.5	23.7	101.6	3,770	248.3	407.0	1,029	2,662	293.7	1,950	8,955
1979	152.7	147.2	905.0	1,570	63.3	531.2	75.0	25.0	108.3	3,870	282.5	418.5	1,107	2,720	277.7	2,025	9,370
1980	133.2	155.4	1,020	1,530	69.9	501.1	77.5	27.8	113.0	3,850	252.8	389.9	1,094	2,215	211.8	2,040	8,695
1981	123.9	150.7	867.5	1,510	75.3	504.0	77.5	30.3	127.7	3,705	263.3	396.8	1,010	2,225	226.2	2,000	8,545
1982	126.2	165.9	880.0	1,494	74.2	552.2	67.5	32.8	152.6	3,750	181.7	383.8	930.7	1,817	246.3	1,950	7,875
1983	140.0	168.0	997.2	1,564	75.0	587.2	65.0	35.2	172.4	4,025	182.0	418.0	1,003	1,987	262.3	1,970	8,335
1984	141.9	183.9	1,116	1,531	84.0	628.6	76.0	36.0	190.0	4,260	217.8	437.6	1,161	2,219	288.9	2,085	9,120
1985[2]	137.5	198.3	1,130	1,470	84.0	725.7	81.0	40.4	200.0	4,335	209.2	447.6	1,158	2,026	269.7	2,125	9,005
1986[3]	140.7	200.0	990.0	1,542	85.0	772.7	86.0		210.0	4,425	188.1	452.5	1,150	2,145	289.3	2,250	9,255

[1] Including rubber in the form of latex. [2] Preliminary. [3] Estimate. *Source: Rubber Study Group* T.556

World Consumption of Natural and Synthetic Rubber In Thousands of Metric Tons

	Natural									Synthetic						
Year	Australia	Brazil	Canada	France	West Germany	Japan	United Kingdom	United States	World Total	Canada	France	West Germany	Japan	United Kingdom	United States	World Total
1978	41.1	72.5	89.1	163.2	184.9	355.0	139.2	770.8	3,750	203.9	296.2	429.5	741.0	313.4	2,519	8,860
1979	45.4	75.9	93.8	177.0	184.5	390.0	137.5	740.4	3,880	232.0	317.8	447.1	830.0	301.1	2,501	9,210
1980	42.2	81.1	80.0	187.7	179.7	427.0	130.8	585.0	3,760	200.0	341.9	421.3	885.0	248.2	1,980	8,785
1981	41.9	74.4	82.0	169.0	169.1	436.0	120.0	635.0	3,700	210.0	303.4	396.2	851.0	247.0	2,022	8,565
1982	36.4	67.8	76.0	158.0	171.2	439.0	118.0	585.0	3,680	182.0	265.2	386.9	797.0	232.0	1,765	8,035
1983	30.9	70.2	87.0	163.0	179.5	504.0	120.0	665.0	3,985	195.0	276.6	395.8	851.0	228.0	1,883	8,360
1984	35.9	88.7	102.0	162.0	190.0	525.0	118.0	750.7	4,240	280.0	287.0	403.0	915.0	247.0	2,062	9,030
1985[1]	35.8	97.6	95.0	156.0	202.2	539.5	126.0	764.0	4,355	173.0	311.8	411.3	947.5	238.0	1,999	9,045
1986[2]	32.3		87.3	158.7	203.1	535.0	127.3	745.0	4,395	178.0	301.6	423.2	910.0	231.3	2,075	9,175

[1] Preliminary. [2] Estimate. *Source: Rubber Study Group* T.557

World Stocks[1] of Natural Rubber, January 1 In Thousands of Metric Tons

	In Producing Countries								In Consuming Countries (Commercial Stocks)									
Year	Brazil	Vietnam	Sri Lanka	Indonesia	Malaysia (Peninsular)	Singapore	Thailand	Total	Australia	Canada	China	France	West Germany	India	Japan	United Kingdom	United States	Total
1979	19.1	4.0	47.4	75.0	245.5	35.8	60.3	505.0	2.7	8.3	137.5	20.1	13.7	42.9	90.7	29.0	142.3	730
1980	20.8	4.0	61.3	75.0	240.1	51.1	44.7	515.0	3.8	7.3	135.0	20.3	13.5	54.6	76.5	27.6	144.6	735
1981	20.8	4.0	58.5	75.0	254.8	46.3	61.0	535.0	3.2	6.0	150.0	19.6	13.5	40.1	106.9	21.4	126.7	770
1982	19.6	4.0	33.7	75.0	286.3	43.8	60.0	535.0	2.7	9.9	140.0	16.8	14.5	45.9	116.9	20.0	131.9	835
1983	18.5	4.0	11.3	75.0	266.0	26.9	36.6	570.0	4.2	6.9	137.5	9.5	14.5	60.6	90.8	17.8	95.4	850
1984	15.3	4.0	9.6	75.0	254.9	32.2	39.6	545.0	1.8	7.4	187.5	9.0	14.5	47.4	81.0	16.8	80.8	870
1985	11.2	5.0	10.2	95.0	228.8	36.8	41.3	545.0	2.8	8.5	192.5	4.0	15.0	58.0	70.7	15.8	96.4	915
1986[2]	13.5	6.0	12.2	90.0	191.8	22.0	47.1	515.0	2.6	9.0	142.5	4.0	15.0	58.2	70.7	10.0	95.2	895
1987[3]		6.0	25.1	85.0	207.3	21.6	35.0	530.0	2.6	12.5	130.0	3.0	13.0	75.2		11.0	73.0	850

[1] Exclusive of "Stock Afloat" and unreported gov't. stockpiles. [2] Preliminary. [3] Estimate. *Source: Rubber Study Group* (London). T.558

Net Exports of Natural Rubber from Producing Areas In Thousands of Metric Tons

Year	Burma	Kampuchea	Sri Lanka (Ceylon)	Indonesia	Malaysia (Peninsular)	Sabah	Sarawak	Thailand	Vietnam	Other Asia	Liberia	Nigeria	Other Africa	Papua New Guinea	World Total
1979		9.5	128.2	861.0	1,537	33.2	39.5	517.8	34.0	27.8	75.0	26.4	51.3	4.0	3,325
1980		—	120.9	976.1	1,416	30.9	35.2	456.8	33.3	30.5	76.5	14.6	59.2	4.0	3,270
1981		4.0	132.5	808.7	1,402	25.5	28.2	476.0	33.7	30.8	76.9	23.6	57.5	4.5	3,110
1982		7.5	131.3	801.4	1,317	21.7	15.9	546.7	32.3	24.2	67.5	26.8	57.8	2.3	3,065
1983		10.0	125.2	938.0	1,498	21.5	18.9	552.5	35.8	19.0	65.0	28.8	62.0	2.7	3,360
1984		12.0	126.2	1,010	1,484	25.2	18.0	595.2	43.0	19.0	76.0	28.8	65.5	3.0	3,525
1985[1]		14.0	120.4	1,001	1,426	22.0	17.4	685.3	44.0	24.7	81.0	29.1	69.0	5.1	3,595
1986[2]		15.0	108.9	917.6	1,444	24.6	16.3	750.6	48.0	24.7	86.0	37.0	69.1	4.9	3,600

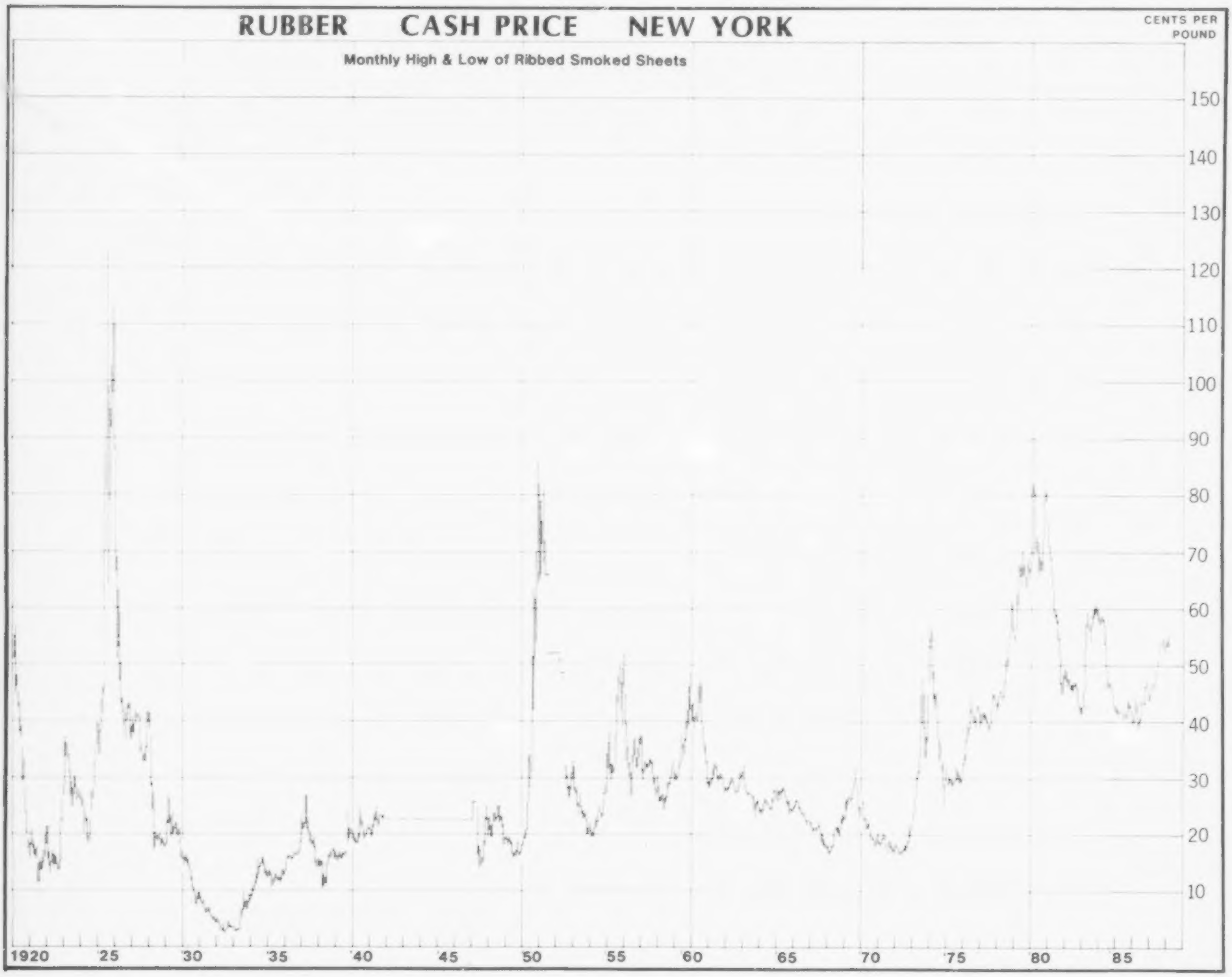
[1] Preliminary. [2] Estimate. *Source: Rubber Study Group* (London) T.559

Average Spot Crude Rubber Prices (Smoked Sheets[1]) in New York In Cents Per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	71.3	69.0	65.0	59.0	58.0	57.0	56.0	54.0	50.4	—	45.6	48.3	57.6
1982	48.8	46.5	47.0	45.3	45.3	46.1	46.5	46.8	44.5	42.6	42.1	41.8	45.3
1983	44.0	48.5	57.8	57.8	56.8	54.5	58.3	59.3	60.5	60.5	58.3	—	56.0
1984	57.3	58.3	58.0	56.8	51.8	47.0	46.0	46.0	46.0	43.0	42.8	42.0	49.6
1985	42.3	42.3	41.8	42.3	40.8	42.0	40.3	41.8	41.8	43.8	42.5	39.8	41.8
1986	40.7	42.8	42.0	39.2	40.1	41.0	43.5	43.5	45.3	46.9	44.7	44.7	42.9
1987	45.9	46.5	43.8	47.4	49.1	50.6	53.5	53.7	54.2	53.8	53.1	54.0	50.5

[1] No. 1, ribbed, plantation rubber. *Source: Bureau of Labor Statistics* (07-11-02.01); Wall St. Journal

T.561



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Consumption of Natural Rubber in the United States In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	59.2	61.1	63.8	61.2	68.0	61.9	51.7	69.1	65.6	69.5	70.9	62.8	764.65
1979	68.3	66.6	74.5	61.8	60.2	59.0	57.9	63.2	57.7	65.2	55.6	47.9	739.00
1980	63.0	57.3	55.7	46.9	42.3	41.3	38.8	43.2	49.4	49.5	50.3	48.7	586.15
1981	49.0	52.6	55.4	55.1	53.9	59.5	56.4	51.1	52.1	57.3	49.7	42.6	634.67
1982	55.3	59.9	50.2	57.8	63.3	68.9	32.7	65.6	48.8	53.3	48.9	56.0	660.61
1983	64.5	44.5	55.3	55.3	56.9	67.0	48.8	39.2	50.2	75.3	69.7	49.6	676.30
1984	73.8	56.8	83.1	68.2	65.1	42.4	73.9	56.1	63.7	58.3	55.4	54.1	750.70
1985[1]	71.8	65.7	91.5	51.7	89.0	45.2	55.4	47.3	68.1	47.2	65.7	52.4	774.70
1986[1]	59.4	71.8	71.3	81.9	45.5	54.6	69.9	49.9	57.0	80.3	50.8	51.2	744.65
1987[1]	49.9	85.4	81.3	62.3	62.6	56.3	67.4	61.4	53.7				

[1] Preliminary. *Source: Rubber Manufacturers' Association*

T 562

Stocks of Natural Rubber in the United States, Beginning of Month In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1978	127.6	123.3	116.4	117.1	115.6	122.8	123.4	125.4	126.1	127.7	133.5	124.0
1979	125.6	121.4	115.6	116.1	136.6	130.2	137.7	146.0	144.4	135.6	135.0	124.5
1980	132.1	131.4	135.3	141.4	152.4	145.7	147.4	149.9	138.5	132.9	129.5	123.1
1981	126.7	128.0	125.4	122.8	127.6	124.1	119.5	113.5	111.2	114.4	123.0	130.5
1982	142.4	127.1	126.5	121.3	116.6	110.8	105.4	110.2	97.7	89.0	90.2	95.4
1983	95.4	91.8	95.0	87.4	93.8	100.0	97.9	99.2	90.7	83.3	74.8	75.9
1984	80.8	95.2	95.7	87.7	87.8	91.4	88.5	87.0	84.8	86.2	87.3	91.3
1985[1]	96.4	94.3	97.3	91.4	101.9	95.9	95.6	97.9	93.9	84.9	81.1	85.1
1986[1]	95.2	97.0	96.9	100.4	98.6	98.6	96.7	93.8	86.4	91.6	75.3	78.2
1987[1]	38.5	76.7	78.8	70.2	80.2	79.5	79.0	82.5	77.0	78.7		

[1] Preliminary. *Source: Rubber Manufacturers' Association*

T 563

Stocks of Synthetic Rubber in the United States, Beginning of Month In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1978	426.8	441.0	427.9	434.5	446.9	441.4	433.1	456.5	445.1	435.8	425.3	419.9
1979	424.1	407.1	400.0	393.6	398.9	391.5	401.3	411.3	402.2	402.8	389.9	402.1
1980	402.9	439.9	436.2	427.6	452.2	445.1	429.2	391.2	372.3	339.7	325.4	328.9
1981	341.8	364.5	354.6	347.0	365.9	368.3	359.8	369.4	353.4	351.9	352.6	364.4
1982	349.0	333.3	336.8	349.2	358.3	364.4	352.9	342.8	326.6	304.3	318.8	294.6
1983	269.7	281.0	284.8	283.5	283.8	294.3	290.8	304.8	269.8	256.2	250.7	276.9
1984	277.9	284.1	277.2	277.0	294.6	305.0	302.3	309.3	300.6	312.0	301.4	285.9
1985[1]	272.6	281.2	271.8	288.6	294.0	292.5	286.4	295.8	413.5	397.3	374.9	367.0
1986[1]	349.0	352.8	353.0	397.7	403.0	238.6	247.5	239.9	233.4	236.5	231.1	224.6
1987[1]	235.6	247.0	249.4	242.6	240.3	242.2	241.7	251.9	240.6	222.8		

[1] Preliminary. *Source: Department of Commerce*

T 564

Production of Synthetic Rubber in the United States In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	198.2	193.8	210.3	214.9	211.2	194.4	195.9	205.7	207.4	212.3	212.1	219.1	2,475
1979	207.9	200.8	232.1	216.7	223.3	210.7	202.9	202.8	210.0	213.8	206.0	207.6	2,535
1980	195.6	194.7	206.8	192.4	159.6	129.6	110.3	123.7	149.8	174.6	178.5	193.7	2,015
1981	193.5	169.7	200.4	180.9	175.9	158.2	161.5	159.7	168.4	170.0	157.7	125.5	2,021
1982	155.6	162.3	187.9	171.7	171.1	156.8	139.7	145.5	147.9	154.4	122.4	116.5	1,829
1983	155.2	153.9	170.1	160.5	171.1	164.6	154.4	146.7	159.6	174.5	189.4	160.2	1,936
1984	183.3	173.0	190.3	193.2	191.4	183.7	166.7	178.4	173.0	179.7	158.3	147.5	2,156
1985[1]	169.9	161.6	182.1	166.0	154.2	142.5	150.4	154.2	160.3	153.6	149.2	131.8	1,838
1986[1]	166.5	158.4	189.1	178.6	167.8	164.9	155.3	170.5	178.6	186.7	145.6	174.7	1,985
1987[1]	187.1	177.5	193.6	174.1	179.8	175.0	186.2	164.2	176.0				

[1] Preliminary. *Source: Department of Commerce*

T 565

Consumption of Synthetic Rubber in the United States In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1977	217.6	203.6	232.6	203.1	218.8	208.6	161.1	209.8	209.0	205.7	190.9	203.4	2,464
1978	193.7	193.2	206.2	197.5	212.7	194.7	170.6	213.9	211.7	220.3	212.1	209.8	2,436
1979	226.0	201.4	224.4	201.5	212.0	179.6	176.5	202.3	187.9	202.8	174.5	163.3	2,341
1980	170.8	176.1	191.1	148.9	135.7	120.1	131.0	133.7	166.0	167.9	157.7	155.1	1,854
1981	153.0	166.7	194.0	144.9	167.1	154.1	144.7	165.0	163.5	163.8	141.1	131.9	1,890
1982	153.3	140.7	154.3	145.3	148.5	154.5	135.8	150.5	158.1	131.0	136.8	136.1	1,757
1983	131.7	140.2	158.2	146.3	146.2	156.7	135.6	170.3	170.5	180.4	158.2	147.2	1,828
1984	177.5	175.4	180.5	166.7	167.1	171.0	147.1	173.9	151.5	184.1	166.3	147.2	2,062
1985[1]	155.8	169.5	159.6	154.8	152.7	143.6	139.8	150.6	171.6	174.3	154.0	140.3	1,802
1986[1]	160.7	146.9	175.7	157.6	163.9	148.0	151.5	168.5	160.6	177.5	145.8	155.7	1,873
1987[1]	162.8	166.1	182.8	160.5	163.1	157.9	161.9	163.6					

[1] Preliminary. *Source: Department of Commerce* T.566

Exports of Synthetic Rubber from the United States In Thousands of Long Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1977	19.11	20.97	24.34	21.48	22.06	20.78	24.72	14.86	26.15	14.59	13.80	17.13	239.98
1978	16.94	18.86	22.55	19.48	24.90	22.28	19.35	20.04	20.77	22.22	23.81	23.77	254.96
1979	23.62	22.29	27.74	29.43	28.74	34.61	34.51	39.37	34.90	38.61	36.53	34.76	385.11
1980	31.46	34.48	41.98	41.68	46.88	37.33	36.54	30.46	25.51	33.45	30.72	32.31	422.78
1981	31.21	31.65	38.73	31.77	32.00	28.55	26.27	21.97	24.40	23.94	22.49	21.65	334.63
1982	27.76	23.46	31.18	26.53	24.73	25.23	20.40	22.04	22.83	21.13	20.47	18.86	284.62
1983	20.24	18.61	24.44	24.91	31.66	24.37	20.15	21.08	22.01	20.14	23.75	23.67	275.01
1984	24.12	22.22	28.09	29.13	29.42	28.02	29.58	30.24	29.95	25.54	25.92	25.68	327.91
1985	23.86	22.68	28.94	26.23	30.38	27.25	22.21	24.95	27.60	25.33	22.13	25.44	306.94
1986	23.49	27.66	24.00	35.39	25.71	25.04	26.34	31.77	34.34	30.39	27.78	27.04	338.85
1987	31.91	32.69	35.49	36.48	38.79	36.34	33.56	32.75					

Source: Department of Commerce T.567

Production of Auto. Pneumatic Casings[2] & Truck & Bus Retail Sales[1] in the U.S. In Ths. of Casings

	Total Production of Tires													Retail
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Sales[1]
1977	20,638	20,094	22,640	20,087	19,512	20,734	15,050	19,495	19,321	18,926	17,716	17,425	231,638	3,675
1978	18,290	18,319	18,987	18,828	19,148	18,946	15,108	19,245	19,155	20,497	18,299	18,869	223,406	4,110
1979	20,352	19,592	21,807	18,609	18,544	15,603	14,904	16,911	15,985	17,775	14,480	12,340	206,687	3,480
1980	15,188	15,059	15,082	13,678	11,370	10,716	10,206	12,057	13,911	15,790	12,861	13,346	159,263	2,487
1981	15,434	15,614	16,805	15,438	15,157	15,447	14,321	15,443	15,894	16,604	13,750	11,855	181,762	2,260
1982	14,866	15,387	17,051	15,077	14,856	15,669	12,293	14,835	15,528	15,381	13,585	13,972	178,500	2,559
1983	15,497	14,992	15,370	16,325	15,653	15,473	12,570	16,440	16,360	16,734	15,136	15,483	186,923	3,129
1984	16,749	17,498	19,122	16,988	18,043	18,557	15,546	18,078	17,333	19,136	16,645	15,682	209,375	3,485
1985[3]	18,381	17,375	18,704	17,388	16,781	15,216	12,989	16,635	16,844	17,626	15,198	13,786	196,923	3,913
1986[3]	16,306	15,966	16,968	16,037	15,003	14,647	14,203	16,112	16,540	18,180	15,144	15,183	190,289	3,947
1987[3]	16,879	16,593	17,733	16,680	16,982	16,548	15,796	16,723						

[1] Domestic & imports, in thousands. [2] Passenger cars, buses, trucks & motorcycle tires. [3] Preliminary.
Sources: Rubber Manufacturers' Association; Motor Vehicle Manufacturing Association T.568

Stocks of Auto. Pneumatic Casings & Passenger[1] Car Retail Sales in the U.S. In Ths. of Casings

	Total Stocks of Tires												Retail
Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Sales[1]
1977	34,768	39,010	43,212	45,616	45,832	46,231	44,887	43,460	45,229	44,542	43,841	45,176	11,185
1978	47,181	51,523	54,621	51,986	50,006	49,277	46,293	44,280	44,057	41,796	40,135	40,394	11,312
1979	43,472	47,212	51,284	52,223	53,540	53,033	46,362	49,397	48,422	46,002	44,357	44,546	10,671
1980	44,873	46,760	49,993	50,471	49,220	46,972	42,817	40,079	37,057	33,730	32,112	32,363	8,979
1981	33,298	41,226	44,402	45,217	44,713	43,480	41,445	39,998	39,601	38,986	39,487	41,112	8,536
1982	40,863	42,904	46,254	47,817	46,583	45,337	43,475	40,763	40,192	38,685	38,116	38,436	7,980
1983	39,955	43,839	45,483	50,287	51,921	42,395	39,622	36,989	35,541	32,854	31,530	31,676	9,182
1984	33,340	35,450	37,615	38,529	38,026	37,693	37,678	36,365	37,199	37,685	37,277	37,995	10,394
1985[2]	39,623	41,948	45,905	48,875	49,168	49,063	46,909	44,349	43,553	41,514	40,425	40,023	11,039
1986[2]	39,823	40,717	43,499	45,359	44,519	44,741	40,009	38,036	36,836	34,890	34,130	33,681	11,450
1987[2]	34,286	36,323	38,341	40,673	39,962	40,312	37,872	37,344	37,501				

[1] Domestic & imports, in thousands. [2] Preliminary. *Sources: Rubber Manufacturers' Association; Motor Vehicle Mfg. Association* T.569

Rye

Rye is a staple farm grain crop, used for bread, as a feedstuff for animals, and to make whiskey and gin. U.S. 1987/88 production was pegged at 19.7 million bushels. This compares with 19.5 million in 1986/87 and 20.6 million in 1985/86. Planted area of 2.43 million acres in 1987/88 was little changed from the previous season. However, acreage had been trending downward since the recent peak of 2.97 million in 1984/85. Harvested acreage in 1987/88 was placed at 630,000. Average yield was 28.9 bushels, near the previous season.

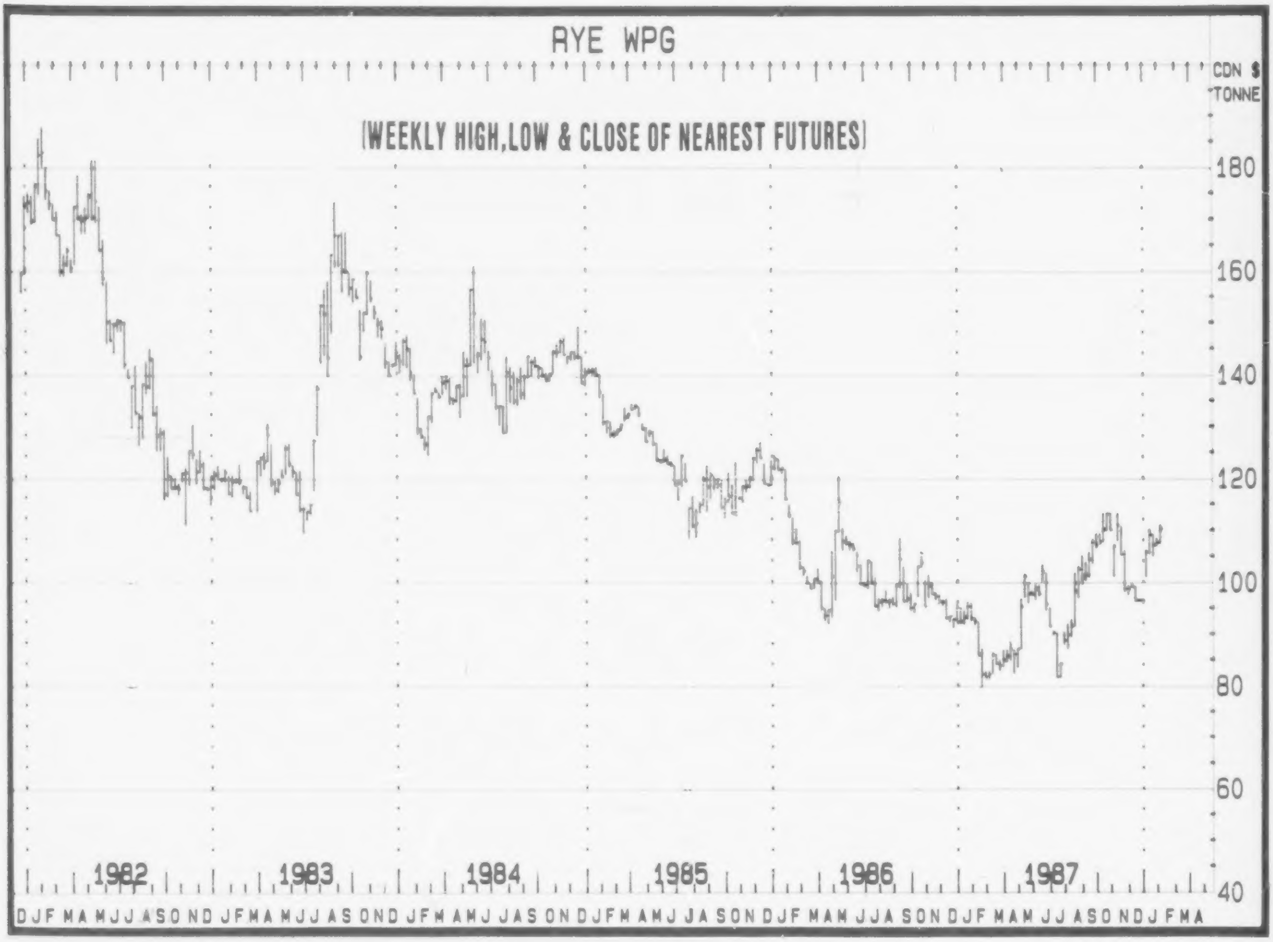
Total U.S. supply for 1987/88 was forecast at 41.0 million bushels, from which 22 million were expected to be used. Rye used for feed accounted for more than 50 percent of total usage. Exports were placed at a negligible 500,000 bushels. The carryover for the end of the 1987/88 season was estimated at 19 million bushels.

Carryover stocks had been building since the 1981/82 marketing year, when they amounted to 3 million bushels. Each year saw an increase until 1985/86, when ending inventories amounted to 21.9 million bushels. Since then, stocks have fallen.

North and South Dakota are the two major producing states. Between them, they were expected to harvest 8.7 million bushels in 1987/88. North Dakota posted a substantial increase in outturn from the previous year (5.12 million bushels, versus 4.25 million). The U.S. price-support loan rate for rye was $1.55 per bushel for 1987, down from $1.63 in 1986. The season's average price was pegged at $1.30, a nickel a bushel lower than in the previous year.

Futures Market

Rye futures are traded on the Winnipeg Commodity Exchange (WCE).



World Production of Rye In Thousands of Metric Tons

Crop Year	Argentina	Austria	Canada	Czechoslovakia	Denmark	France	Germany West	Germany East	Hungary	Netherlands	Poland	Spain	Turkey	USSR	United States	World Total
1980–1	155	383	448	575	199	405	2,184	1,917	139	39	6,566	284	525	10,205	419	25,268
1981–2	149	320	927	544	208	342	1,793	1,797	116	29	6,731	212	520	9,500	478	24,373
1982–3	148	348	933	583	235	327	1,703	2,119	120	26	7,792	169	430	14,000	496	30,108
1983–4	130	348	827	751	315	278	1,646	2,092	138	26	8,781	253	380	14,000	689	31,407
1984–5	140	380	664	710	608	321	1,983	2,510	193	25	9,540	325	360	13,400	827	32,799
1985–6[1]	100	339	598	700	560	283	1,877	2,500	150	19	7,553	295	350	14,000	664	30,529
1986–7[2]															496	
1987–8[2]															485	

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.570

Salient Statistics of Rye in the United States

	Supply						Disappearance							Acreage		
	Stocks, June 1						Domestic Use									
Year Begin. June 1	Privately Owned[2]	Gov't.[3]	Total Stocks	Production	Imports	Total Supply	Food	Industry	Seed	Feed[5]	Total	Exports	Total Disappearance	Planted	Harvested for Grain	Yield Per Harvested Acre Bushels
	Thousands of Bushels													Mil.		
1980–1	12,000	192	12,192	16,483	10	28,685	3,515	2,050	4,150	6,700	16,400	7,494	23,900	2,488	650	24.6
1981–2	4,000	145	4,030	18,187	432	22,600	3,458	2,242	4,160	8,100	18,100	1,529	19,600	2,566	685	26.6
1982–3	—		3,012	19,533	3,043	25,600	3,315	2,256	4,300	9,700	19,600	194	19,800	2,533	677	28.9
1983–4			5,822	27,116	1,600	34,500	3,500	2,100	4,700	11,900	22,200	1,000	23,200	2,707	896	30.3
1984–5			11,300	32,463	600	44,400	3,500	2,000	4,100	14,500	24,100	400	24,500	2,971	981	33.1
1985–6			19,800	20,637	2,200	42,600	3,500	2,100	3,800	11,100	20,500	200	20,700	2,563	717	28.8
1986–7[1]			21,900	19,522	1,000	42,400	3,500	2,000	3,700	12,300	12,500	500	22,000	2,384	677	28.8
1987–8[4]			20,400	19,098	1,000	41,000	3,500	2,000	3,500	12,500	21,500	500	22,000	2,483	673	28.4

[1] Preliminary. [2] Includes total loans. [3] Uncommitted, gov't only. [4] Forecast. [5] Residual; approximates total feed use.
Source: Economics Research Service, U.S.D.A. T.571

Production of Rye in the United States In Thousands of Bushels

Year	Illinois	Indiana	Kansas	Michigan	Minnesota	Georgia	Nebraska	No. Dakota	Ohio	Oklahoma	Oregon	So. Dakota	Virginia	Texas	Wisconsin	So. Carolina
1979	391	208	504	625	2,275	2,310	770	4,200	155	910	144	5,700	384	513	368	609
1980	368	182	210	504	1,900	1,995	666	1,470	231	816	150	4,030	325	494	368	616
1981	336	234	252	532	2,883	2,730	924	2,560	150	680	150	3,220	364	475	408	726
1982	299	260	240	522	3,300	1,470	1,269	2,400	155	736	116	4,680	364	504	300	621
1983	336	270	220	600	4,960	1,470	1,265	4,320	210	780	100	8,740	312	450	300	320
1984	308	336	312	588	6,650	1,760	1,392	5,400	175	704	140	10,800	378	240	216	546
1985	256	308	300	651	3,300	2,070	1,242	2,640	172	828	111	4,440	312	400	234	532
1986	210	280	210	713	1,600	1,785	1,035	4,250	175	840	200	4,440	364	190	168	391
1987[1]	144	297	270	640	1,200	1,540	1,050	4,495	180	360	120	5,040	435	150	100	528

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.572

Month-End Open Interest of Rye Futures in Winnipeg In 20 Tonne Units

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	4,648	5,028	5,379	6,172	3,313	5,229	5,348	4,839	5,814	6,106	4,250	3,428
1981	3,876	4,811	3,704	3,640	2,948	3,368	5,028	6,440	5,251	2,516	4,404	3,828
1982	3,739	3,622	3,219	3,583	4,426	3,008	2,268	4,286	5,250	4,052	3,773	3,244
1983	3,227	3,628	3,097	4,625	4,834	4,935	7,883	7,915	3,665	4,494	3,110	3,054
1984	2,224	4,566	3,980	3,883	3,731	3,023	2,888	5,430	7,098	6,320	5,894	4,158
1985	4,267	4,826	4,175	4,227	3,893	3,919	4,031	5,022	4,872	5,478	4,289	3,786
1986	4,287	4,335	3,302	4,211	3,039	2,553	2,900	3,447	3,377	2,862	2,437	2,032
1987	2,463	1,906	2,084	3,006	4,441	3,853	2,595	4,139	3,518	3,542	2,876	2,437

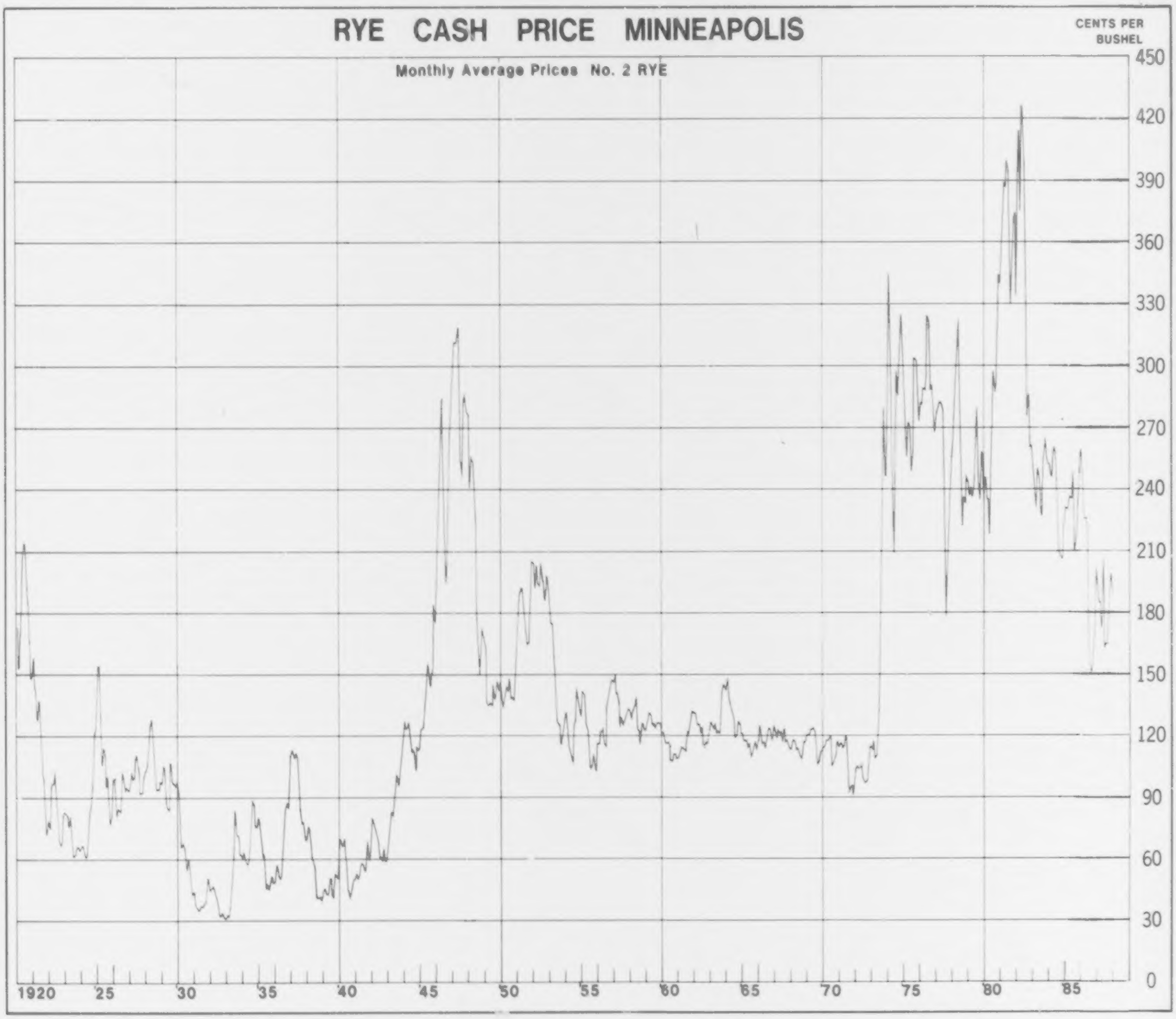
Source: Winnipeg Commodity Exchange T.577

RYE

U.S. Rye Crop Production Reports and CCC Operations In Thousands of Bushels

Year Begin. June 1	Official Crop Reports July 1	Aug. 1	Dec. 1	Final	National Average Support Rate $ Per Bushel	% of Parity	Placed Under Loan	Direct Purchases	Placed Under Loan Total	Acquired by CCC	Total Stocks Ending May 31 Ending Carryover[1]	CCC Uncommitted	Privately Owned[3] Under Loan[4]	Other
1977–8	17,787	18,242	16,998	16,543	1.70	61	—	—	900	—	4,418	—	—	—
1978–9	28,518	28,567	26,160	24,065	1.70	56	—	—	3,000	—	4,137	—	—	—
1979–0	23,638	23,736	24,549	21,887	1.79	49			2,000	—	8,973		—	
1980–1	15,784	16,189	16,265	15,958	1.91	51			450	—	11,970		—	
1981–2	16,743	17,083	18,621	18,187	2.04	48			500	—	4,030			
1982–3	20,119	19,924	20,817	19,533	2.17	48			1,700	1,400	3,012			
1983–4	26,058	25,698	28,152	27,116	2.25	47			5,300	4,600	5,822			
1984–5	29,903	30,184	32,392	32,463	2.17	45			10,100	11,000	11,300			
1985–6[2]	19,255	19,298	20,637	20,637	2.17	47			4,100		19,800			
1986–7[2]	—	17,892	19,498	19,522	1.63						21,900			
1987–8[2]	—	19,098			1.55						20,400			

[1] Old-crop rye under loan at end of crop year. [2] Preliminary. [3] Derived by subtracting CCC stocks & loans outstanding from ending carryover. [4] Includes previous crops under reseal. *Source: Economic Research Service, U.S.D.A.* T.573



RYE CASH PRICE MINNEAPOLIS

Monthly Average Prices No. 2 RYE

Average Price of Cash Rye No. 2 at Minneapolis In Cents per Bushel

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
1979–0	279	247	235	257	249	235	245	235	235	218	244	266	247
1980–1	297	287	292	307	344	340	352	363	389	387	396	394	346
1981–2	352	330	356	371	374	334	394	414	375	426	410	397	378
1982–3	342	276	286	260	261	256	251	246	231	250	244	232	261
1983–4	227	256	265	256	254	252	251	245	250	260	258	244	252
1984–5	227	209	207	206	221	227	231	230	235	236	235	248	226
1985–6	210	215	223	233	248	259	246	228	226	226	219	178	226
1986–7	156	151	160	168	173	202	195	185	185	173	196	163	176
1987–8	165	165	175	198	199								

Source: Economic Research Service, U.S.D.A. T.575

High, Low & Closing Prices of May Rye Futures in Winnipeg In Canadian Dollars per Tonne

Year of Delivery	Year Prior to Delivery							Delivery Year					Life of Delivery Range
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1980 High	154.00	188.00	167.50	189.40	191.00	181.00	175.00	192.50	195.00	205.50	196.50	195.50	205.50
Low	117.50	148.50	139.50	159.40	171.50	170.50	160.80	163.50	182.00	176.00	173.80	168.50	117.50
Close	143.50	158.00	159.40	184.00	181.50	172.10	169.40	183.00	186.00	187.60	178.50	195.50	—
1981 High	193.50	205.90	194.50	205.70	231.00	250.50	244.00	242.00	244.50	242.50	232.50	199.50	250.50
Low	170.50	189.00	182.10	192.00	201.80	228.00	216.50	223.00	225.50	223.40	176.00	186.70	170.50
Close	192.90	194.00	194.20	203.00	230.00	242.80	237.00	225.50	244.50	230.20	189.50	194.00	—
1982 High	167.00	181.50	215.90	233.50	218.00	195.60	187.00	185.20	187.30	171.00	178.00	180.90	233.50
Low	151.20	154.90	183.50	211.20	193.00	181.50	169.80	168.70	169.50	158.50	160.00	163.40	151.20
Close	151.20	181.50	215.90	217.70	194.20	183.40	171.00	182.00	169.50	160.30	170.00	165.50	—
1983 High	162.00	162.00	152.50	150.50	139.50	140.20	133.00	126.30	123.20	123.00	130.00	126.00	162.00
Low	162.00	152.00	138.00	133.80	128.00	129.00	121.00	119.80	116.40	115.30	118.10	116.50	115.30
Close	162.00	152.50	145.00	133.80	128.20	130.20	121.00	123.10	120.50	122.70	118.70	122.50	—
1984 High	—	—	174.00	176.00	173.30	165.80	158.30	150.00	141.00	140.00	139.30	157.00	176.00
Low	—	—	154.40	169.50	154.40	156.60	146.00	140.70	125.10	129.20	134.00	131.50	125.10
Close	—	—	170.10	170.50	162.50	157.70	148.90	141.00	129.30	138.20	135.50	151.50	—
1985 High	—	—	156.00	158.70	156.90	157.20	154.80	145.40	142.30	134.60	133.80	128.80	158.70
Low	—	—	152.20	152.90	152.20	153.00	145.20	143.00	132.00	132.30	128.30	122.80	122.80
Close	—	—	153.00	157.70	152.70	154.10	145.20	143.00	132.60	133.70	128.30	122.80	—
1986 High	—	—	131.70	130.80	128.00	132.50	134.00	126.90	118.40	107.00	102.20	116.00	131.70
Low	—	—	121.50	124.50	121.40	125.00	126.30	119.50	106.60	100.70	91.70	96.30	91.70
Close	—	—	128.30	124.50	125.00	132.10	126.30	119.70	107.50	102.50	100.50	107.20	—
1987 High	—	—	101.00	102.50	105.00	104.50	103.00	98.70	96.00	89.50	88.20	101.20	105.00
Low	—	—	100.50	97.40	99.50	100.80	96.00	94.20	82.70	83.00	82.30	85.50	82.30
Close	—	—	101.00	100.40	101.00	103.10	98.20	95.70	84.70	84.50	85.40	97.50	—
1988 High	—	—	106.50	107.00	107.50	104.70	104.70						
Low	—	—	98.00	104.00	100.00	99.40	102.00						
Close	—	—	106.50	104.80	101.20	103.80	103.00						

Source: Winnipeg Commodity Exchange T.576

Rye Under Price Support Through the End of the Month (Cumulative Total from Current Season's Crop) In Thousands of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1979–0	5	338	765	1,106	1,313	1,397	1,592	1,653	1,790	1,882	1,900	1,905	1,905
1980–1	—	97	240	297	348	384	396	399	402	406	406	406	
1981–2	36	264	359	398	424	439	448	456	456	456	456	456	
1982–3	7	344	771	1,008	1,096	1,193	1,324	1,369	1,588	1,709	1,711	1,712	
1983–4	83	1,819	2,228	3,533	3,885	4,199	4,577	4,862	5,141	5,228	5,254	5,256	
1984–5	68	3,581	6,661	8,224	8,653	8,911	9,655	9,830	9,996	10,078	10,066	10,070	
1985–6	567	1,769	2,836	3,516	3,728	3,816	3,955	3,996	4,012	4,060	4,074	4,078	
1986–7	147	1,337	3,249	4,627	5,022	5,140	5,383	5,594	5,722	5,879	5,878	5,888	5,892
1987–8	—	1,237	3,239										

Source: U.S. Department of Agriculture T.578

Salt

U.S. salt production was estimated at 36 million short tons in 1987, down slightly from 37.3 million in 1986. The Bureau of Mines estimated that producers in 1987 either sold or consumed in their own chemical processes 35.7 million tons, versus 36.7 million in 1986. Apparent consumption fell to 40.8 million tons from 42.2 million. The difference between production and consumption was accounted for by net imports of 5.1 million tons, and by drawdowns in inventories.

Approximately 49 percent of the salt consumed by the U.S. in 1987 was used in the chemical industry, primarily to produce chlorine and its by-product, caustic soda. Besides use in bleach, chlorine is used in the production of pulp and paper and alumina, and in many other applications. U.S. demand for chlorine has been growing by 2 to 3 percent annually and is expected to continue rising. U.S. chlorine manufacturing plants were running near 100 percent of capacity in 1987, but because chlorine manufacture requires electrolysis, new capacity can be expensive. One plant was scheduled to go on stream in late 1987 in the Niagra Falls region of New York, where it would have access to hydroelectric power.

About 26 percent of 1987 use was for deicing, which is subject to vagaries of the weather and municipal budgets. Because of complaints about water pollution and about rust-through by car owners, highway departments are applying salt more efficiently.

The 1987 average f.o.b. price of salt was estimated at $93 a ton, up from $91.27 in 1986. World salt production was estimated at 192.2 million tons in 1986.

World Production of All Salt In Thousands of Short Tons

Year	Brazil	Canaoa	China	France	West Germany	India	Italy	Japan	Mexico	Netherlands	Poland	Spain	United Kingdom	United States	USSR	World Total
1980	4,231	7,748	19,048	7,831	12,562	8,828	5,806	1,226	7,248	3,818	4,997	3,868	7,887	40,351	16,094	186,156
1981	3,974	7,981	20,194	7,315	13,824	9,845	5,039	1,105	8,767	3,944	4,708	4,072	7,408	38,907	16,755	189,198
1982	4,105	8,752	18,060	7,389	12,951	7,763	4,920	1,065	6,130	3,517	4,251	3,626	8,418	37,910	17,416	181,071
1983	4,615	9,482	17,780	7,661	11,980	7,730	4,618	1,015	6,287	3,444	3,996	3,481	6,957	34,605	17,857	175,401
1984	4,990	11,282	17,950	7,880	13,461	8,520	4,385	1,053	6,798	4,050	5,193	3,735	7,856	39,256	18,200	190,196
1985[1]	3,008	11,117	15,924	7,841	14,407	10,889	4,129	1,300	7,129	4,579	5,363	3,571	7,877	40,102	17,747	191,565
1986[2]	3,900	12,222	19,070	7,808	12,300	11,004	4,444	1,510	7,200	4,148	5,400	3,400	7,800	36,703	17,700	192,222

[1] Preliminary. [2] Estimate. *Source: Bureau of Mines* T.581

Salient Statistics of the Salt Industry in the United States In Thousands of Short Tons

Year	Net Import Reliance as a % of Apparent Consumption	Avg. Value F.O.B. Mine Vacuum & Open Pan $ Ton	Sold or Used by Producers — Evaporated (Mfg.) — Bulk — Open & Vacuum Pans	Sold or Used by Producers — Evaporated (Mfg.) — Bulk — Solar	Sold or Used by Producers — Evaporated (Mfg.) — Pressed Blocks	Sold or Used by Producers — Evaporated (Mfg.) — Total Evaporated	Sold or Used by Producers — Rock Salt — Bulk	Sold or Used by Producers — Rock Salt — Pressed Block	Sold or Used by Producers — Total Salt Rock	Sold or Used by Producers — Salt in Brine	Sold or Used by Producers — Total Salt	Sold or Used by Producers — Value[3] Million $	Imports for Consumption	Exports — Total	Exports — To Canada	Apparent Consumption
1980	7	76.44	3,587	2,334	393	6,314	11,742	65	11,806	22,231	40,352	656.2	5,263	831	800	44,784
1981	8	79.68	3,500	2,298	404	6,201	11,809	62	11,871	20,835	38,907	637.6	4,319	1,046	1,011	42,180
1982	11	86.72	3,379	2,478	447	6,305	13,431	72	13,503	18,086	37,894	671.4	5,451	1,001	957	42,344
1983	18	87.39	3,309	1,962	408	5,680	9,867	73	9,941	18,952	34,573	597.1	5,997	517	475	40,053
1984	15	92.78	3,322	2,345	542	6,209	13,276	71	13,348	19,669	39,225	675.1	7,545	820	792	45,950
1985[1]	15	83.68	3,604	2,666	455		14,000	70	14,690	19,107	40,067	739.6	6,207	904	883	45,370
1986[2]	12	84.00	3,583	2,562	465		11,927	67	12,598	17,920	36,663	665.4	6,665	1,165	1,091	42,163

[1] Preliminary. [2] Estimate. [3] Values are f.o.b. mine or refinery & do not include cost of cooperage or containers. [4] Or Grainers. *Source: Bureau of Mines* T.582

Salt Sold or Used by Producers in the U.S. by Classes & Consumers or Uses In Thousands of Short Tons

Year	Chemical[4]	Flour Processors	Textile & Dyeing	Meat Packers, Tanners, Etc.[2]	Canning	Baking	U.S. Govt.	Feed Dealers	Feed Mfgs.	Rubber	Oil	Paper & Pulp	Metals	Water Softener Mfg.[3]	Grocery Stores	Flour Proc.	Highway Use
1980	23,941	92	177	546	287	113	121	1,172	662	95	709	230	272	686	995	92	6,389
1981	22,241	82	180	491	230	109	126	1,147	646	113	820	246	299	700	1,021	82	6,725
1982	18,861	83	165	550	204	109	152	967	699	51	1,035	209	294	718	1,053	83	9,053
1983	19,950	86	171	531	211	114	563	977	628	45	918	274	242	707	987	86	5,041
1984	19,701	79	135	537	242	124	1,131	923	590	41	860	307	309	892	859	79	7,610
1985	21,204		186	552	263	126		863	412	36	965	311		888	901		
1986[1]	19,801		226	588	271	134		940	388	133	627	307		1,028	946		

[1] Preliminary. [2] Also casing mfg. [3] Also service companies. [4] Chloralkali producers & other chemical. *Source: Bureau of Mines* T.583

Sheep & Lambs

In 1987, sheep numbers in the 29 major raising countries were estimated by USDA at 704 million head, a 2 percent rise over 1986 and the largest since 1979. Season's beginning inventories in Australia, the major producer, were 160 million head, up 2 percent. The USSR began with 140 million head, off slightly from a year earlier, while New Zealand had 73.2 million, up 8 percent. New Zealand raises sheep primarily for meat, while Australia raises them for wool.

U.S. sheep and lamb inventories on January 1, 1987 totaled 10.3 million head, up 3 percent from 1986 and the first increase since 1982. U.S. commercial lamb and mutton production for 1987 was estimated at 307 million pounds, off nearly 8 percent from 1986. The drop was attributed to reduced slaughter, due to the continued retention of ewe lambs. Federally inspected slaughter of sheep and lambs through June 1987 was 2.49 million head, down 10 percent from the year-earlier period. As of January 1, 1987, however, there were 24 percent more ewe lambs in the breeding herd than a year before. This indicated a reduction in the culling of ewes and increased retention of ewe lambs for breeding, raising expectations for larger inventories and production in 1988.

U.S. lamb and mutton imports were forecast to increase negligibly in 1987 to 40 million pounds. Per capita consumption of lamb and mutton was expected to drop to 1.3 pounds, the lowest since 1982.

The price of lambs (average wholesale at Omaha) reached record highs, averaging $82.54/cwt. through first-half 1987, versus the year-earlier period's $70.81.

World Sheep Numbers in Specified Countries In Millions of Head

Year	India	Argentina	Australia	Bulgaria	Romania	France	New Zealand	Spain[2]	Turkey	United Kingdom	United States	South Africa	Uruguay	USSR	China[4]	World
1981	40.7	30.0	134.4				68.8	16.5	48.6	21.6	12.9	33.8	24.1	141.6	187.0	657
1982	48.0	29.0	138.0			13.1	69.9	17.1	49.6	22.2	13.0	33.6	23.2	142.4		671
1983	49.5	33.5	133.2	10.8	16.9	12.1	70.3	17.5	47.5	22.9	12.1	32.0	23.3	142.2		669
1984	51.1	33.9	139.2	11.0	18.5	11.9	70.3	17.6	47.7	23.3	11.5	31.3	23.3	145.3		684
1985	52.8	29.4	149.7	10.5	18.6	11.6	69.7	17.5	47.8	23.9	10.4	30.3	22.8	142.9		688
1986	54.5	29.2	155.6	9.7	18.6	11.2	67.9	17.3	47.0	24.5	10.0	29.5	24.8	140.9		690
1987[1]	55.5	29.0	158.6	9.6	18.7	10.6	69.6	17.2	43.5	26.0	10.3	29.7	25.7	142.2		697
1988[3]	56.7	28.9	160.6	9.6	18.7	10.5	65.8	17.0	39.5	26.6	10.9	30.0	27.6	141.8		696

[1] Preliminary. [2] One year old & older. [3] Estimate. [4] Mainland. *Source: Foreign Agricultural Service, U.S.D.A.* T.584

Salient Statistics of Sheep & Lambs in the United States Avg. Lv. Weight

	On Hand Jan. 1	Lambs Saved	In Shipments	Marketings[2]	Slaughter		Production	Marketings[2]	Value of Production	Cash Receipts[3]	Value of Home Consumption	Gross Income	Farm Value (1/1)	
Year	Mil. Head		Ths. Head		Farm	Total[4]	Mil. Lbs.		Millions of Dollars				All	$ per Head
1981	12.9	8.8	1,885	8,613	189	6,197	772.4	884	359.1	416.1	12.3	428.4	903.3	69.80
1982	13.0	8.6	2,115	9,482	195	6,644	785.4	1,033	355.7	445.1	13.0	458.1	739.6	57.00
1983	12.1	8.2	1,838	8,924	171	6,790	767.6		356.7	426.4	10.6	437.0	628.6	51.80
1984	11.5	7.8	1,859	8,828	141	6,900	694.1		376.5	466.5	11.1	477.7	598.9	58.10
1985	10.4	7.4	1,692	8,066	135	6,300	694.2		427.8	503.2	12.8	516.0	637.9	61.10
1986[1]	10.0	7.3	1,781	7,385	127	5,762	720.7		443.6	483.5	12.5	496.0	673.0	67.40
1987[1]	10.3												781.8	75.70

[1] Preliminary. [2] Excludes interfarm sales. [3] Includes receipts from marketings & from sales of farm slaughter meats. [4] Includes all commercial & farm. *Source: Crop Reporting Board, U.S.D.A.* T.585

Sheep and Lambs on Farms in the United States, January 1 Thousands of Head

	All Sheep and Lambs[2]														
Year	Minnesota	California	Colorado	Idaho	Missouri	Montana	New Mexico	Ohio	South Dakota	Texas	Utah	Wyoming	Iowa	Total[2]	Total[1] Stock
1981	295	1,205	810	512	138	595	650	310	780	2,360	650	1,110	437	12,936	11,287
1982	335	1,210	710	498	133	616	615	313	750	2,400	636	1,130	485	12,966	11,402
1983	300	1,115	750	429	126	560	610	295	680	2,225	590	1,060	457	12,140	10,385
1984	255	1,115	690	383	128	564	589	265	740	1,970	568	1,090	425	11,487	9,769
1985	255	1,065	675	313	123	515	538	265	639	1,810	515	860	360	10,443	8,847
1986	213	1,065	600	320	101	423	525	275	540	1,810	484	819	350	9,983	8,491
1987[3]	237	980	690	314	110	523	480	300	605	1,930	464	775	375	10,328	8,824

[1] Stock sheep & lambs; does not include sheep & lambs on feed for market. [2] Includes sheep & lambs on feed for market and stock sheep & lambs. [3] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.586

SHEEP AND LAMBS

Average Wholesale Price of Lambs at Omaha In Dollars Per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	50.00	53.50	55.25	59.25	65.00	66.42	57.33	54.10	48.53	49.86	45.27	45.10	52.23
1982	48.92	51.58	58.52	58.67	62.56	60.28	56.16	50.71	48.93	46.92	45.46	47.62	53.03
1983	53.50	58.50	59.75	58.75	59.00	53.00	51.12	49.25	48.50	51.75	56.00	57.75	54.74
1984	60.50	58.75	58.75	60.50	62.25	61.75	61.50	62.76	63.58	63.35	62.98	60.08	61.39
1985[1]		66.92	67.75	69.50	74.25	72.56	71.98	71.42	68.94	63.32	62.50	60.62	68.41
1986[1]	61.75	68.50	67.00	68.00	80.75	74.71	70.50	66.16	62.45	57.23	65.17	72.70	67.54
1987[1]	77.25	74.62	82.50	85.50	89.94	85.42	74.02	70.86	67.14	66.00	63.50		

[1] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.587

Federally Inspected Slaughter of Sheep & Lambs in the United States In Thousands of Head

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	488	426	488	512	426	440	439	467	546	558	476	522	5,789
1982	510	490	570	1,493			1,577			1,634			6,273
1983	509	457	616	509	508	508	497	585	595	580	510	536	6,412
1984	540	548	586	592	558	500	511	561	528	588	524	514	6,549
1985[1]	544	473	564	512	494	423	485	496	480	554	460	490	5,976
1986[1]	507	441	524	477	417	406	432	426	495	495	401	442	5,464
1987[1]	418	390	432	477	363	407	411	400	459	446			

[1] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.588

Cold Storage Holdings of Lamb and Mutton, on 1st of Month In Thousands of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	9,142	8,997	7,843	7,823	10,196	10,403	12,297	12,564	13,694	13,311	12,676	11,362
1982	10,540	9,569	8,449	8,783	—	—	8,266	—	—	8,571	—	—
1983	8,653	7,682	7,673	8,218	8,331	8,839	8,691	7,717	8,815	8,622	9,092	10,270
1984	10,701	8,312	7,542	8,057	9,123	8,839	8,678	8,404	8,026	8,889	8,403	7,890
1985	7,066	7,339	6,840	6,547	7,644	8,068	8,931	9,193	9,541	9,237	10,033	12,525
1986[1]	12,766	11,615	13,813	11,615	12,754	12,742	14,068	14,318	15,459	14,450	14,641	13,843
1987[1]	12,603	11,550	13,565	13,595	13,248	12,858	10,996	9,311	8,468	6,978	7,036	8,595

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.589

Average Price Received by Farmers for Sheep in the U.S. In Dollars per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average[1]
1981	27.40	29.00	26.10	23.40	19.50	20.30	23.00	20.40	20.30	19.70	19.10	19.20	21.20
1982	25.10	21.30	27.20	22.20	21.00	22.00	21.00	18.60	16.50	15.20	15.30	16.80	19.50
1983	21.30	21.90	20.80	17.40	15.20	14.50	16.20	15.50	12.80	13.80	15.10	17.00	15.70
1984	18.20	19.80	18.70	16.30	13.00	13.80	16.80	17.30	15.90	15.20	18.10	24.30	16.40
1985[2]	26.50	24.10	26.20	24.70	22.90	22.00	27.20	26.10	25.30	21.50	23.60	26.60	28.90
1986[2]	29.90	26.10	23.00	24.90	24.10	25.90	26.70	26.40	27.30	25.50	26.10	29.30	26.10
1987[2]	31.50	32.20	30.70	28.60	28.30	25.70	28.50	32.00	32.50	31.50	30.90	31.30	30.23

[1] Weighted average by quantities sold. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.590

Average Price Received by Farmers for Lambs in the U.S. In Dollars per 100 Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average[1]
1981	54.10	55.40	56.50	58.80	63.10	65.00	59.50	56.20	50.40	50.60	47.40	47.50	54.90
1982	50.40	53.30	60.30	61.50	63.50	57.80	56.30	52.90	50.90	49.10	47.70	50.90	53.10
1983	55.50	60.50	63.20	61.50	59.60	54.20	49.80	48.30	47.50	50.90	55.80	58.90	53.90
1984	60.00	59.20	58.20	60.60	59.50	57.50	58.60	61.00	61.80	62.40	63.30	61.90	60.10
1985[2]	63.40	64.70	68.00	68.40	72.40	69.70	70.80	70.80	70.20	67.80	66.00	62.70	67.70
1986[2]	63.90	67.00	64.90	69.10	76.30	74.00	71.90	69.50	67.60	62.50	69.30	73.20	69.10
1987[2]	76.60	76.00	80.80	86.10	90.10	83.50	78.70	76.10	76.80	71.90	65.70	71.50	77.80

[1] Weighted average by quantities sold. [2] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.591

Silk

World production of raw silk and waste increased in 1987 from 67,980 tonnes the previous year, according to various textile industry and government representatives, but official data were not available. Strong world demand for silk garments in recent years has led China, which accounts for nearly 60 percent of global output, to increase its raw silk production. That country's output was 39,060 tonnes in 1986, up from 38,920 the year before, according to the U.N. Food and Agriculture Organization. However, output by Japan, the second major producer, has trended lower, partly because of land constraints. Japan produced about 9,000 tonnes in 1986, down from 9,592 in 1985. India, another major supplier, has been expanding its production, while North Korea and the USSR remain important cultivators.

China has been marketing silk much more aggressively in recent years, and its 1986 export sales of raw silk, fabric, and garments totaled $1.13 billion. Shipments in 1987 were estimated to have exceeded that level. In order to meet strong export demand, China has improved its breeding techniques and is now producing larger cocoons. Additionally, it has been mechanizing some of the work involved in cultivation, spinning, and textile production. In India, the government is attempting to expand the silk textile industry, and is building some new factories with World Bank financing.

Global trade in raw silk exceeds 30,000 tonnes annually. Shipments by China account for over half of the total, and world prices are heavily influenced by Chinese prices, which reportedly rose in 1987.

Salient Statistics of Silk in the United States

Year	World Production (Raw) Million Lbs.	U.S. Unmanufactured[1] Imports[2] (By Country of Origin) — Thousands of Pounds										U.S. Silk Imports[2] — Mil. Lbs. —		Mill Consumption	
		Total Imports	Brazil	United Kingdom	Hong Kong	India	Italy	Japan	Switzerland	China	Korea	Raw	Waste	Total Mil. Pounds	Per Capita Pounds
1971	90	1,702	38	—	—	—	345	1,154	—	—	74	.3	1.4	1.7	.10
1972	93	2,139	76	—	—	—	227	1,339	—	—	106	.6	1.6	2.1	—
1973	95	3,342	79	13	—	—	472	2,197	—	—	15	.6	2.8	3.3	—
1974	99	2,593	145	0	—	—	397	1,476	—	—	107	.4	2.2	2.6	—
1975	104	968	176	1	—	—	0	386	—	353	0	.6	.4	1.0	—
1976	106	2,653	247	1	—	—	98	1,727	—	457	—	.7	1.9	2.8	—
1977	108	1,621	106	0	—	—	0	1,230	—	268	0	.4	1.2	1.6	—
1978	112	1,989	182	0	—	107	1	918	—	607	119	.7	1.3	2.0	—
1979	121	1,565	193	—	—	—	—	602	—	747	—	.8	.8	1.5	—
1980	123	1,053	139	—	5	—	—	108	—	713	71	.5	.6	1.5	—
1981	126	1,983	176	—	29	—	223	175	—	1,280	0	.8	1.2	2.0	—
1982[3]	121	4,219	224	—	94	—	223	256	—	3,311	0	1.4	2.8	2.0	—
1983[4]	121													2.0	—
1984[4]	121													3.0	
1985[4]														3.0	
1986[4]														3.0	

[1] In skeins, wild or tussah, cocoons, and waste. [2] Imports for consumption. [3] Preliminary. [4] Estimate.
Sources: Department of Commerce; Textile Organon

T.592

Raw Silk Deliveries in the U.S. In Bales (132 Lbs.—60 Kilos)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1971	247	205	187	277	228	129	192	241	247	355	165	253	2,726
1972	233	184	308	198	141	195	182	445	529	209	229	313	3,166
1973[1]	556	355	450	499	393	119	577	214	71	93	105	246	3,678
1974	124	305	233	277	175	288	269	139	97	302	151	96	2,456
1975	190	188	410	393	394	219	380	219	505	585	225	641	4,349
1976	925	469	689	362	251	579	337	358	422	268	222	159	5,041
1977	352	239	242	212	254	259	322	311	370	424	322	433	3,740
1978	321	394	424	382	397	299	316	341	401	280	468	214	4,237
1979	501	302	687	353	471	418	407	756	492	490	368	518	5,763
1980	312	644	422	507	366	285	257	332	342	365	265	323	4,420
1981	471	380	471	446	322	529	300	259	348	414	487	611	5,038
1982	450	489	662	398	234	369	495	403	364	226	514	317	4,921
1983	280	506	390	462	717	377	264	474	534	529	587	324	5,444
1984	715	537	455	315	636	655	229	672	532	562	391	538	6,237
1985	462	689	344	480	415	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	—

[1] Includes re-exports from 1973. *Source: International Silk Association*

T.593

Silver

World mine production of silver in 1987 was estimated at 428 million troy ounces, up less than 2 percent from 1986, according to the Bureau of Mines (BOM). Mexico was expected to remain the largest producer, supplying 75 million ounces, and followed by: Peru, 62 million; the USSR, 48 million; Canada, 40 million; and the U.S., 38 million.

In 1987, the U.S. imported an estimated 95 million ounces of silver for consumption (excluding silver coins), down from 144.9 million in 1986. Apparent consumption fell to 144 million ounces from 200.6 million in 1986. U.S. refinery production of silver included 45 million ounces of primary production and 24 million recovered from old scrap; both were up slightly, from 42.4 million and 23.2 million ounces, respectively, a year earlier. The BOM estimated year-end industrial stocks (including COMEX and Chicago Board of Trade deliverable supplies) at 185 million ounces, versus 178 million at 1986's end. Apparently, virtually all of the increase was in COMEX stocks, which grew 7.5 percent in 1987 to 156 million ounces.

While silver reacted modestly to international economic developments in 1986, the average price in 1987 climbed to $7.20/oz. from $5.47 in 1986, because of inflation fears in the spring. However, abundant supplies, as indicated by the increase in warehouse stocks, left the market vulnerable to speculative liquidation, and both cash and futures prices suffered corrections. But silver held most of its gains until the October stock market collapse, which cooled fears of inflation and pressured silver as an industrial metal. Nevertheless, prices were high enough that Idaho's Lucky Friday silver-lead-zinc mine was reopened in June. The mine, which was the nation's largest silver producer in 1985 (over 4.7 million ounces), was closed in April 1986. Also, a mine producing 1.1 million ounces per year in Montana reopened in May.

The largest and lowest-cost primary silver producer in the world is probably the Real de Angeles Mine in Mexico, having an average cash cost of less than $1 an ounce and a monthly output of 1 million ounces. However, two-thirds of the world's silver resources are associated with copper, lead, and zinc deposits, and production from those sources often depends on demand for the base metals. The strong recovery of copper prices in 1987 was expected to increase by-product silver output. In 1986, silver by-product recovery rose at gold mines because of the use of heap-leach technology to process low-grade ore from surface deposits. Many of the gold mines that have opened in the 1980s contain only small amounts of by-product silver, but a few were expected to yield large amounts.

In September, Mexico sold 4 million ounces worth of silver certificates (Certificados Plata), commonly called CEPLATAs. Each certificate represents 100 troy ounces of 99.9 percent silver. Besides creating a market for Mexico's production, CEPLATAs can be converted into physical silver or cash at Mexican brokerage houses and participating commercial banks.

In the U.S., six major North American silver mining firms announced a 4-year marketing campaign to boost consumer sales of silverware, jewelry, and bullion coins. The campaign has an annual budget of $2 million, which was to be financed by a contribution of 3 cents/troy ounce of silver produced by the firms.

Significant sources of domestic silver consumption in 1987 were the U.S. Mint's Silver Eagle bullion coins and the Constitution bicentennial commemoratives; these drew 16.3 million ounces from the surplus in the National Defense Stockpile between March 1986 and August 1987. However, the major consumer remained the photography industry. The BOM estimated 1986 photographic consumption at 55.4 million ounces, about 44 percent of total reported U.S. industrial usage. The figure for 1987 was expected to be in the same ball park.

The BOM announced in September that it was changing the way it reports silver demand from a system based on user reports to one based on its own data. The old system apparently underreported consumption.

Futures Markets

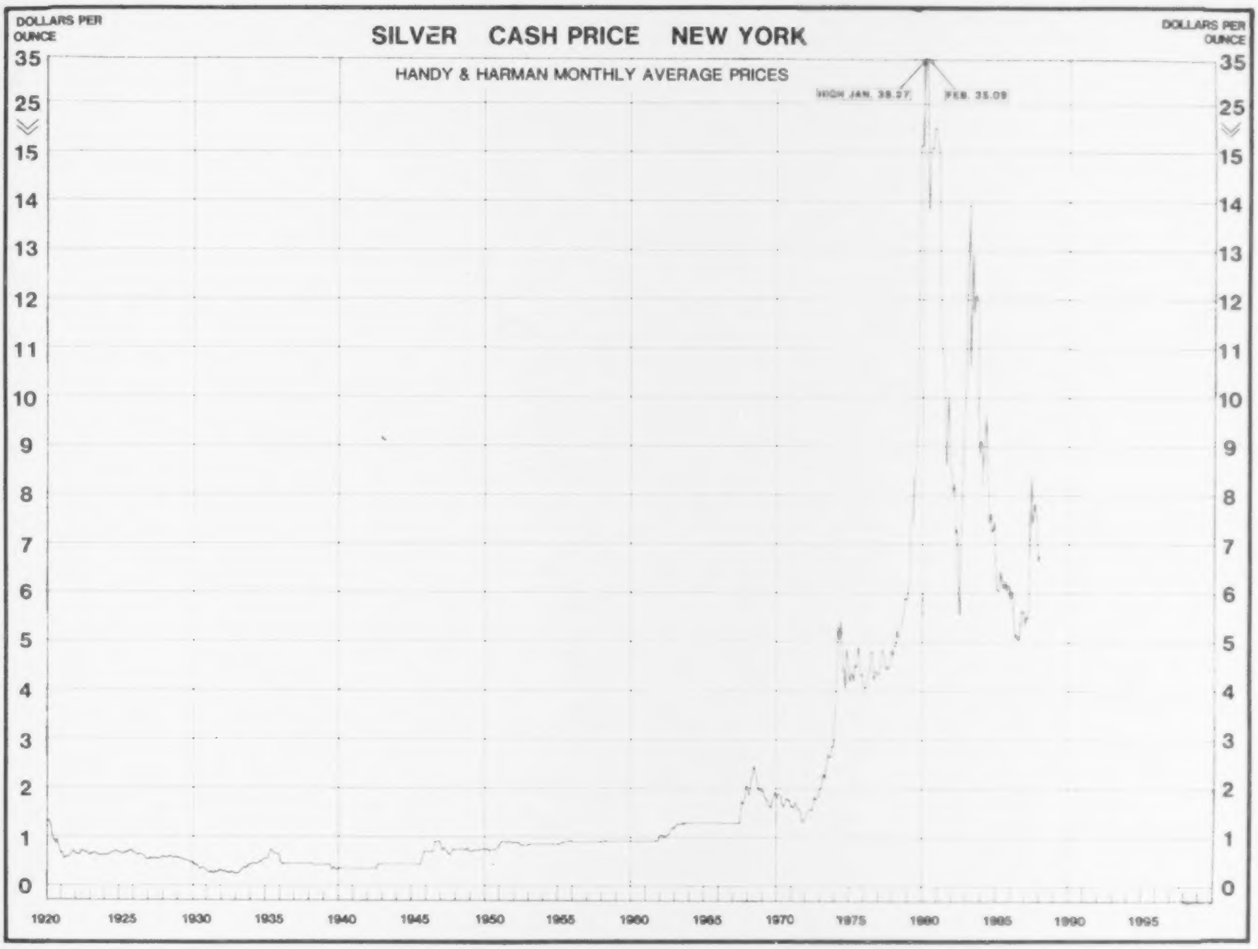
Silver is traded on the New York Commodity Exchange (COMEX), the Chicago Board of Trade, the MidAmerica Exchange, the London Metal Exchange, and in Winnipeg.

World Mine Production of Silver, by Selected Countries In Millions of Fine Ounces (Troy Ounces)

Year	Argentina	Australia	Bolivia[1]	Canada	West Germany	Honduras	Japan	Mexico	Morocco	Peru	Poland	United States	USSR[2]	Yugoslavia	Zaire (Congo)	World Total[2]
1976	2.25	25.03	5.34	41.20	1.03	3.18	9.30	42.64	2.05	35.58	17.8	34.33	44.0	4.63	2.47	316.4
1977	2.45	27.53	5.81	42.24	1.06	2.82	9.60	47.03	2.82	39.73	20.7	38.17	45.0	4.68	2.73	331.3
1978	2.16	26.12	6.29	40.73	.80	2.79	9.66	50.78	3.13	37.02	21.9	39.39	46.0	5.13	4.39	345.0
1979	2.21	26.76	5.74	36.87	1.04	2.43	8.68	52.17	3.28	39.25	22.6	37.90	46.0	5.21	3.89	348.1
1980	2.36	24.65	6.10	33.34	1.06	1.77	8.60	50.05	3.15	44.42	24.63	32.33	46.0	4.79	2.73	342.8
1981	2.52	23.91	6.39	36.30	1.13	1.82	9.01	52.92	2.12	46.94	20.58	40.68	46.5	4.44	2.58	361.6
1982	2.68	29.16	5.47	42.25	1.28	2.10	9.84	59.18	2.64	41.96	21.12	40.25	46.9	3.34	1.75	371.2
1983	2.50	33.21	6.03	35.56	1.17	2.59	9.88	63.61	2.85	50.48	21.80	43.43	47.2	3.99	1.29	386.5
1984	1.98	31.26	4.56	42.66	1.23	2.70	10.40	75.34	2.41	53.08	23.92	44.59	47.4	4.05	1.23	412.1
1985[3]	2.19	35.00	3.58	38.48	1.09	2.77	10.92	73.17	2.73	58.23	26.72	39.43	47.9	5.02	1.52	421.0
1986[2]	2.20	35.00	3.20	39.19	1.00	2.70	11.31	75.20	1.60	61.92	27.00	34.22	48.2	5.00	1.50	419.8
1987[2]												37.00				

[1] Exports. [2] Estimate. [3] Preliminary. *Source: Bureau of Mines*

T.594



Average Price of Silver in New York (Handy & Harman) In Cents per Troy Ounce (.999 Fine)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1973	201.7	223.6	230.9	220.7	240.1	262.1	270.6	263.7	267.5	288.6	286.0	313.7	256.0
1974	363.7	535.9	532.6	503.6	543.2	489.6	441.6	443.1	404.9	483.0	469.4	439.1	470.8
1975	419.3	437.0	434.5	420.9	453.8	448.9	470.5	492.5	451.6	432.9	433.2	408.5	442.0
1976	406.3	408.6	418.9	435.1	448.9	481.2	478.0	423.7	429.5	422.5	437.3	434.7	435.4
1977	440.9	452.7	484.2	477.7	469.2	444.3	449.8	444.4	453.9	476.3	482.8	470.6	462.3
1978	493.4	493.6	526.8	511.6	512.0	531.6	533.1	549.5	557.5	591.8	586.5	593.0	540.0
1979	625.5	741.7	745.4	749.3	836.6	853.8	913.5	933.4	1,395.9	1,678.1	1,655.3	2,179.3	1,109.0
1980	3,827.2	3,508.5	2,413.3	1,384.1	1,253.3	1,574.8	1,606.0	1,589.7	2,014.4	2,018.1	1,864.8	1,639.3	2,063.3
1981	1,475.2	1,306.5	1,236.9	1,091.7	1,084.8	1,000.1	863.1	892.3	1,003.6	925.1	854.7	843.2	1,048.1
1982	803.1	826.8	721.3	731.1	667.4	557.8	649.7	713.6	872.5	948.8	991.8	1,058.6	795.0
1983	1,239.6	1,396.4	1,061.9	1,169.4	1,295.3	1,174.9	1,208.8	1,209.6	1,191.5	984.1	883.7	912.1	1,143.9
1984	818.2	912.7	965.1	922.1	897.2	874.4	741.6	761.3	726.3	731.7	748.9	669.4	814.1
1985	609.8	607.0	601.4	645.8	628.1	617.2	610.4	624.7	605.4	618.8	613.4	588.8	614.2
1986	605.3	587.4	503.9	522.9	511.5	515.3	504.9	521.8	568.3	566.7	559.6	536.4	547.0
1987	552.9	548.8	568.2	742.8	843.9	741.1	767.8	784.7	759.1	755.8	666.2	679.0	700.9

Source: Handy & Harman

T.595

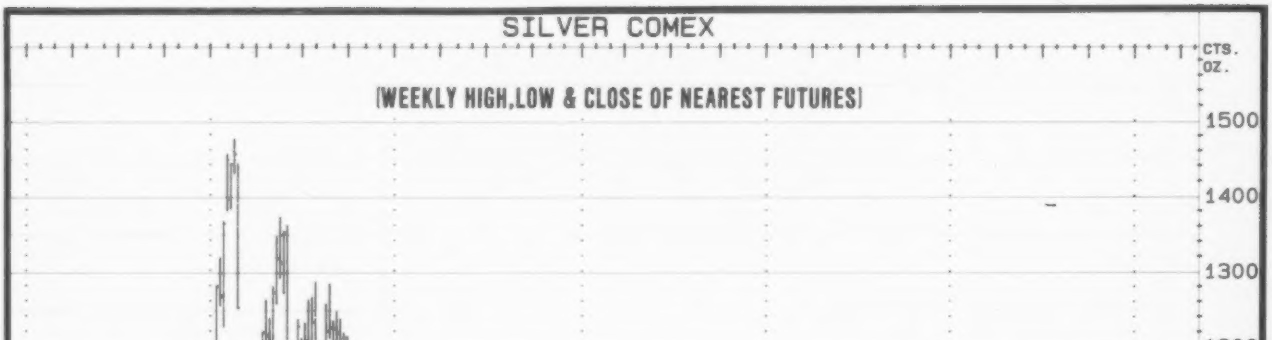
SILVER

World[2] Silver Consumption In Millions of Troy Ounces

	Industrial Uses									Coinage							
Year	Canada	France	W. Germany	India	Italy	Japan	Un. Kingdom	United States	World Total	Canada	France	W. Germany	Austria	Mexico	United States	World Total	World Total
1973	8.6	14.3	64.7	13.0	41.5	69.0	31.0	195.9	477.8	1.4	.1	9.5	6.6		.9	29.2	507.0
1974	9.6	15.5	59.9	15.0	38.6	46.5	25.0	177.0	409.4	8.9	.1	8.8	5.6		1.0	27.9	436.9
1975	10.6	21.2	38.9	13.0	28.9	46.4	28.0	157.7	376.8	10.4	5.2	4.3	13.4	—	2.7	38.8	415.6
1976	9.5	19.0	50.8	18.0	32.1	60.7	28.0	170.5	437.5	8.4	6.7	2.9	6.9	—	1.3	29.7	467.2
1977	8.8	20.6	59.5	17.6	33.8	63.2	32.2	153.6	433.6	.3	6.9	2.6	3.0	4.2	.4	23.4	457.0
1978	9.0	22.2	47.2	20.0	41.8	64.8	29.0	160.2	442.6	.3	11.1	3.6	4.5	6.3	.1	36.3	478.9
1979	8.1	21.5	46.1	19.0	31.1	66.4	26.5	157.2	434.2	.3	7.7	3.7	5.0	5.0	.1	27.8	462.0
1980	8.7	20.2	29.1	19.0	21.8	61.7	20.5	124.7	354.5	.2	—	—	4.3	6.1	.1	13.7	368.2
1981	9.4	20.6	33.8	19.0	12.9	59.8	18.5	116.6	344.0	.2	—	—	3.0	—	—	9.0	353.0
1982	9.0	18.6	35.9	16.1	9.6	63.2	20.0	118.8	345.4	.3	—	—	4.0	—	2.5	12.8	358.2
1983	8.9	18.6	30.3	12.9	9.0	71.5	18.0	116.3	340.7	.4	—	—	2.0	—	19.2	19.6	360.3
1984	9.0	17.0	30.1	16.1	11.6	78.7	19.0	114.8	353.3	.3	—	—	—	2.0	3.4	8.7	362.0
1985	9.1	18.0	31.7	20.9	4.6	75.3	19.0	118.6	357.2	.3			—	3.0	4.4	12.7	369.9
1986[1]	9.6	16.4	36.9	16.1	9.6	79.4	20.5	127.8	380.7	2.0			1.0	1.7	9.5	22.8	403.5

[1] Preliminary. [2] Non-communist areas only. *Source: Handy & Harman*

T.597



U.S. Mine Production of Recoverable Silver In Thousands of Troy Ounces

Year	Arizona	California	Colorado	Idaho	Oregon	Missouri	Montana	Nevada	New Mexico	New York	Tennessee	So. Dakota	Utah	Alaska	Total
1979	7,479	64	2,809	17,144	2	2,201	3,302	560	N.A.	11	N.A.	58	2,454	N.A.	37,896
1980	6,268	49	2,987	13,695	1	2,357	2,024	940	N.A.	21	N.A.	51	2,203	8	32,329
1981	8,055	53	3,009	16,546	7	1,837	2,989	3,039	1,632	29	N.A.	56	2,883	2	40,683
1982	6,309	34	1,934	14,830	—	2,241	6,169	3,142	805	27	N.A.	26	4,343	2	40,248
1983	4,492	27	2,146	17,684	1	2,021	5,708	5,179	N.A.	33	N.A.	62	4,567	4	43,431
1984	4,247	N.A.	2,200	18,869	N.A.	1,401	5,653	6,477	N.A.	N.A.	N.A.	50	N.A.	N.A.	44,592
1985	4,885	115	549	18,828	—	1,635	4,010	4,947	N.A.	N.A.	N.A.	63	N.A.	N.A.	39,433
1986[1]	4,202	155	645	11,207	—	1,459	4,773	6,409	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	34,220
1987[2]	3,200	120					5,600	11,000							37,000

[1] Preliminary. [2] Forecast. *Source: Bureau of Mines* T.599

U.S. Consumption of Silver, by End Use In Thousands of Troy Ounces

Year	Bearings	Brazing Alloys & Solders	Catalysts	Dental & Medical	Electroplated Ware	Electrical & Electronic Products Batteries	Electrical & Electronic Products Contacts & Conductors	Jewelry	Mirrors	Photographic Materials	Sterling Ware	Coins, Medallions[2]	Total Net Industrial Consumption	Coinage	Total Consumption
1979	332	10,912	5,637	2,295	8,065	4,583	33,506	5,358	1,850	65,978	13,088	4,676	157,258	168	157,426
1980	649	8,508	3,035	2,212	4,350	5,976	27,796	5,893	672	49,825	9,082	4,693	124,694	72	124,766
1981	297	7,718	3,830	1,709	3,904	3,803	26,411	5,368	581	51,025	4,407	2,622	116,670	179	116,849
1982	228	7,384	2,418	1,688	3,254	4,167	27,730	6,260	970	51,769	6,579	1,832	118,840	1,846	120,686
1983	170	5,837	2,424	1,532	3,154	2,800	26,298	6,861	970	51,827	7,022	2,979	116,440	2,128	118,568
1984	260	5,889	2,448	1,569	3,542	2,671	25,633	5,773	970	55,322	3,638	2,564	114,841	2,665	117,506
1985	190	5,593	2,409	1,480	3,660	2,470	27,509	5,779	970	57,895	3,527	2,514	118,555	355	118,910
1986[1]	375	6,432	2,313	1,474	3,724	3,722	27,406	4,621	970	55,449	3,935	3,957	118,940	7,427	126,367
1987[3]	400	7,000	3,500	1,100	2,400	4,500	40,200	4,300	900	47,000	4,000	2,500	123,000	14,000	137,000

[1] Preliminary. [2] Includes commemorative objects. [3] Estimate. *Source: Bureau of Mines* T.598

Commodity Exchange, Inc. (COMEX) Warehouse Stocks of Silver In Millions of Ounces

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1979	58.2	52.0	51.8	49.2	50.3	55.5	54.1	48.9	47.3	51.8	60.3	70.2
1980	74.8	76.0	77.8	83.1	84.2	82.3	82.0	81.7	82.6	82.2	87.1	86.1
1981	86.9	86.8	85.4	84.6	85.7	85.1	86.6	85.4	78.8	78.1	76.0	77.3
1982	77.6	76.3	78.5	77.1	79.9	78.0	72.4	66.2	60.0	60.7	59.2	80.6
1983	91.2	90.9	106.4	96.8	91.3	69.8	91.1	93.7	113.6	129.3	129.4	129.6
1984	127.4	123.7	116.8	117.2	115.3	114.3	121.8	120.3	116.2	115.0	113.4	115.4
1985	118.9	121.5	122.3	106.6	106.0	104.2	133.7	140.8	141.0	143.6	149.2	153.7
1986	155.2	142.3	145.9	151.3	154.9	144.6	151.9	150.7	158.6	156.8	138.1	145.1
1987	144.9	150.2	160.0	157.9	157.7	156.1	152.5	151.9	158.6	155.7	154.8	155.8
1988	156.3	156.3										

Source: Commodity Exchange of New York (COMEX) T.600

United States Production[1] of Refined Silver from All Sources In Thousands of Troy Ounces

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.	Total
1979	10,592	10,888	13,070	11,451	11,938	11,600	12,433	9,837	9,118	12,476	12,221	17,008	155,723
1980	18,088	17,548	17,673	16,941	10,400	14,800	6,676	11,583	10,785	10,603	10,578	14,553	166,326
1981	12,889	12,000	11,352	11,889	10,402	11,500	10,433	10,114	10,533	9,954	8,105	11,589	130,783
1982	9,043	8,407	10,300	8,856	9,095	8,840	7,781	8,518	7,872	8,307	9,607	11,655	108,252
1983	9,121	8,533	9,063	9,653	7,663	10,210	8,579	8,342	7,886	8,738	9,880	12,058	112,200
1984	7,094	8,414	8,446	9,827	10,423	8,921	8,879	11,226	8,971	8,386	10,200	13,920	116,400
1985	8,414	7,930	8,645	9,238	9,344	9,850	8,578	9,885	8,191	8,429	8,987	11,467	109,000
1986	7,897	7,835	7,340	8,727	7,547	7,129	3,988	6,404	6,932	7,869	8,216	10,197	90,081
1987	8,170	6,098	7,047	7,946	8,473	7,839	8,777	7,731	7,703	6,692			

[1] Output of commercial bars .999 fine, including U.S. Mint purchases of crude. Production is from both foreign and domestic silver.
Sources: American Bureau of Metal Statistics; The Silver Institute, Inc. T.603

SILVER

Highest and Lowest Prices of December Silver Futures at New York (Comex) In Dollars per Ounce

Year of Delivery		Yr. Prior to Delivery		Delivery Year												Life of Delivery Range
		Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1980	High	20.528	30.910	44.370	42.150	39.780	20.270	14.750	20.200	20.090	17.140	24.180	22.280	20.320	19.020	44.370
	Low	17.540	20.705	31.910	35.200	21.270	13.860	11.450	16.975	17.570	15.900	16.670	18.540	17.580	13.370	7.564
	Close	20.528	30.910	37.645	38.640	21.270	13.860	14.530	19.240	17.840	16.840	21.250	19.100	18.590	16.610	—
1981	High	23.525	22.615	18.800	15.900	14.670	13.580	12.700	11.840	9.780	10.260	11.800	10.050	9.410	9.050	43.750
	Low	20.875	17.190	14.600	13.750	12.800	11.900	11.210	9.080	8.770	8.730	8.490	9.000	7.870	7.980	7.970
	Close	22.015	18.190	15.165	13.720	13.135	12.205	11.685	9.180	9.032	9.720	9.380	9.250	8.205	7.985	—
1982	High	10.700	10.150	9.490	9.860	8.820	8.390	7.540	6.680	7.720	8.660	9.975	10.070	11.010	11.180	17.975
	Low	9.110	9.040	8.730	8.650	7.600	7.350	6.670	5.110	5.800	6.320	7.700	8.020	8.950	10.020	5.110
	Close	9.280	9.185	9.182	8.622	7.870	7.470	6.675	6.406	6.965	8.040	8.240	10.090	10.090	11.140	—
1983	High	11.900	12.350	15.238	16.070	12.180	13.380	14.420	13.320	13.110	13.250	12.740	10.780	9.860	10.040	16.070
	Low	9.900	11.070	11.840	12.666	10.710	11.440	12.680	11.513	11.720	11.750	11.010	8.630	8.320	8.440	6.146
	Close	11.090	11.910	15.238	12.666	11.382	12.715	13.640	12.055	12.225	12.410	11.070	8.630	9.620	8.810	—
1984	High	10.860	11.100	9.780	10.730	10.970	10.490	9.970	10.130	8.739	8.390	7.900	7.865	7.900	17.165	17.550
	Low	9.220	9.400	8.470	9.290	9.930	9.465	9.110	8.700	7.060	7.200	7.120	7.120	6.950	6.245	6.245
	Close	10.649	9.867	9.329	10.420	10.541	9.555	9.835	8.817	7.274	7.660	7.620	7.280	7.019	6.573	—
1985	High	8.745	7.850	6.930	6.850	7.250	7.200	7.015	6.740	6.615	6.630	6.320	6.530	6.318	6.120	12.300
	Low	7.700	6.800	6.300	5.930	5.900	6.440	6.180	6.200	5.990	6.230	5.960	6.075	6.040	5.700	5.700
	Close	7.736	6.860	6.832	6.059	7.106	6.480	6.392	6.309	6.460	6.370	6.095	6.125	6.077	5.865	—
1986	High	6.840	6.650	6.830	6.450	6.140	5.795	5.495	5.660	5.295	5.780	6.120	5.900	5.870	5.515	7.990
	Low	6.540	6.130	6.070	5.930	5.370	5.170	5.030	5.100	5.060	5.150	5.240	5.470	5.200	5.270	5.030
	Close	6.609	6.263	6.443	5.968	5.395	5.342	5.434	5.256	5.214	5.230	5.625	5.680	5.389	5.290	—
1987	High	6.210	5.850	6.030	5.880	6.675	10.148	9.900	8.370	8.585	9.100	8.240	8.620	7.330	7.060	10.148
	Low	5.520	5.580	5.670	5.635	5.695	6.490	7.600	6.850	7.390	7.370	7.370	6.700	6.240	6.560	5.435
	Close	5.717	5.714	5.791	5.707	6.466	8.320	7.920	7.555	8.511	7.530	7.610	6.990	7.037	6.713	—
1988	High	8.000	7.665													
	Low	6.697	7.120													
	Close	7.656	7.203													

Source: Commodity Exchange of N.Y. (COMEX) T.596

Month–End Total Open Interest of Silver Futures at New York (COMEX) & Chicago In Thous. of Contracts

Year	At New York (COMEX)												At Chicago (1,000 oz.[1])			
	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Apr. 1	July 1	Oct. 1
1980	123.6	77.7	63.4	48.5	27.1	23.8	22.9	25.1	24.5	29.8	35.0	36.0	88.9	23.6	22.9	24.0
1981	32.0	27.6	24.3	25.7	26.1	28.8	29.4	31.0	31.0	29.9	32.3	27.5	28.0	21.2	29.8	16.3
1982	27.6	27.5	25.0	29.3	28.3	27.0	27.3	29.0	27.2	24.6	30.0	31.0	7.1	8.6	7.0	12.5
1983	33.9	44.6	54.3	45.9	50.1	57.1	42.8	42.7	48.1	53.0	51.7	55.4	19.4	32.6	35.8	35.1
1984	59.9	62.0	64.3	71.6	64.5	66.5	58.2	64.8	61.3	64.1	73.2	76.2	32.0	37.8	42.7	35.0
1985	81.5	84.3	76.1	74.3	70.1	77.3	73.5	72.5	70.1	76.1	86.6	85.3	27.1	23.2	25.1	21.4
1986	86.7	82.2	79.5	78.9	73.0	75.6	66.6	72.3	69.4	69.8	92.0	90.5	18.5	16.6	12.9	12.9
1987	89.4	94.5	89.0	105.3	105.7	92.0	79.1	90.4	82.0	80.7	83.2	69.7	12.4	12.8	15.2	13.5
1988	75.5												10.3			

[1] 1,000 oz. contract from 1/82. Prior data are for 5,000 oz. contract. *Source: Commodity Exchange of N.Y. (COMEX); Chicago Board of Trade* T.601

Volume of Trading in Silver Futures at New York (COMEX) In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	167.7	76.2	143.5	94.0	46.6	63.3	45.6	41.8	100.9	92.9	97.1	90.6	1,059
1981	70.7	71.0	74.9	72.6	58.0	97.4	77.4	116.0	171.9	121.4	136.6	172.8	1,241
1982	112.8	193.9	211.5	192.9	99.7	217.4	263.1	317.2	258.0	288.9	350.6	372.8	2,869
1983	502.7	601.4	446.6	452.9	516.1	623.7	454.3	656.5	492.0	569.0	596.9	512.7	6,433
1984	570.8	698.8	695.7	629.9	626.7	587.4	554.7	601.5	431.3	449.2	534.2	362.3	6,698
1985	531.8	488.0	518.4	449.8	424.8	377.9	377.7	388.5	267.7	314.0	332.8	349.9	4,821
1986	394.0	368.9	277.6	438.8	280.1	336.1	187.9	317.8	454.6	286.7	338.9	168.2	3,850
1987	247.3	248.0	343.2	932.7	438.6	486.4	378.7	502.7	390.3	468.1	355.9	263.7	5,056

Source: Commodity Exchange of N.Y. (COMEX) T.602

Soybean Meal

World soymeal production in 1987/88 was estimated by USDA at 68.45 million tonnes, 3 percent above the previous season. With world protein meal production put at 110.72 million tonnes, soymeal comprised 62 percent of the total. Soymeal's share of world meal output has remained steady in recent years, while the share held by rapeseed meal has increased, and cottonseed meal's has declined. The U.S. was the largest soymeal producer, followed by Brazil.

Soymeal consumption world-wide was placed at 69.52 million tonnes, 4 percent more than a year earlier. The U.S. was expected to be the largest user, with 27 percent of the total, followed by the European Community. Some of the fastest growth is occurring in developing countries, where population increases and dietary improvements have led to livestock and poultry expansion. Use in the Middle East and North Africa has risen 40 percent since 1983, due to higher poultry production. Usage in Asia and Oceania has expanded by 18 percent, and Eastern Europe and the USSR have shown gains.

Global soymeal exports were forecast to decline 1 percent to 25.23 million tonnes. Brazil remained the dominant exporter, although its shipments in 1987/88 were projected at 8 million tonnes, 4 percent less than a year earlier. Argentina has greatly expanded exports in recent years through the use of differential export taxes. Its 1987/88 shipments were put at 4.4 million tonnes, up 33 percent from a year earlier. The EC is the largest soymeal importer, with purchases in 1987/88 projected at 13 million tonnes.

U.S. soymeal output in 1987/88 was estimated at 28.01 million short tons, up 1 percent from a year earlier and a record. With carry-in stocks of 240,000 tons, the U.S. soymeal supply was placed at 28.25 million short tons, 1 percent more than a year earlier. Supplies were considered likely to increase further, if crushers responded to the very high processing margins in the fall of 1987. Processors had been reluctant to crush more beans, because soyoil stocks remained burdensome. As soyoil stocks were worked down, the crush was expected to increase. Domestic use was projected at 21 million tons, up 3 percent from a year earlier and a record. Increases in poultry and pork production were expected to boost usage.

U.S. exports of soymeal in 1987/88 were forecast at 7 million tonnes, 5 percent less than a year earlier. Increases in the South American crops were expected to put pressure on U.S. soymeal exports during the spring and summer of 1988. In 1987/88, the leading markets for U.S. soymeal were the USSR, the Netherlands, Italy, Venezuela, and Canada. The USSR was producing record amounts of meat and poultry, and Soviet farmers had begun to use soymeal extensively in feed mixtures. U.S. trade associations encouraged the Soviets to buy more soymeal for their livestock industry. The weaker dollar also bolstered exports.

Total U.S. soymeal disappearance was projected at 28 million short tons, a record level. But ending stocks were estimated at 300,000 short tons, 60,000 above a year earlier.

Futures Market

Soymeal futures and options are traded on the Chicago Board of Trade (CBOT).

World Soybean Meal Supply & Distribution In Thousands of Metric Tons

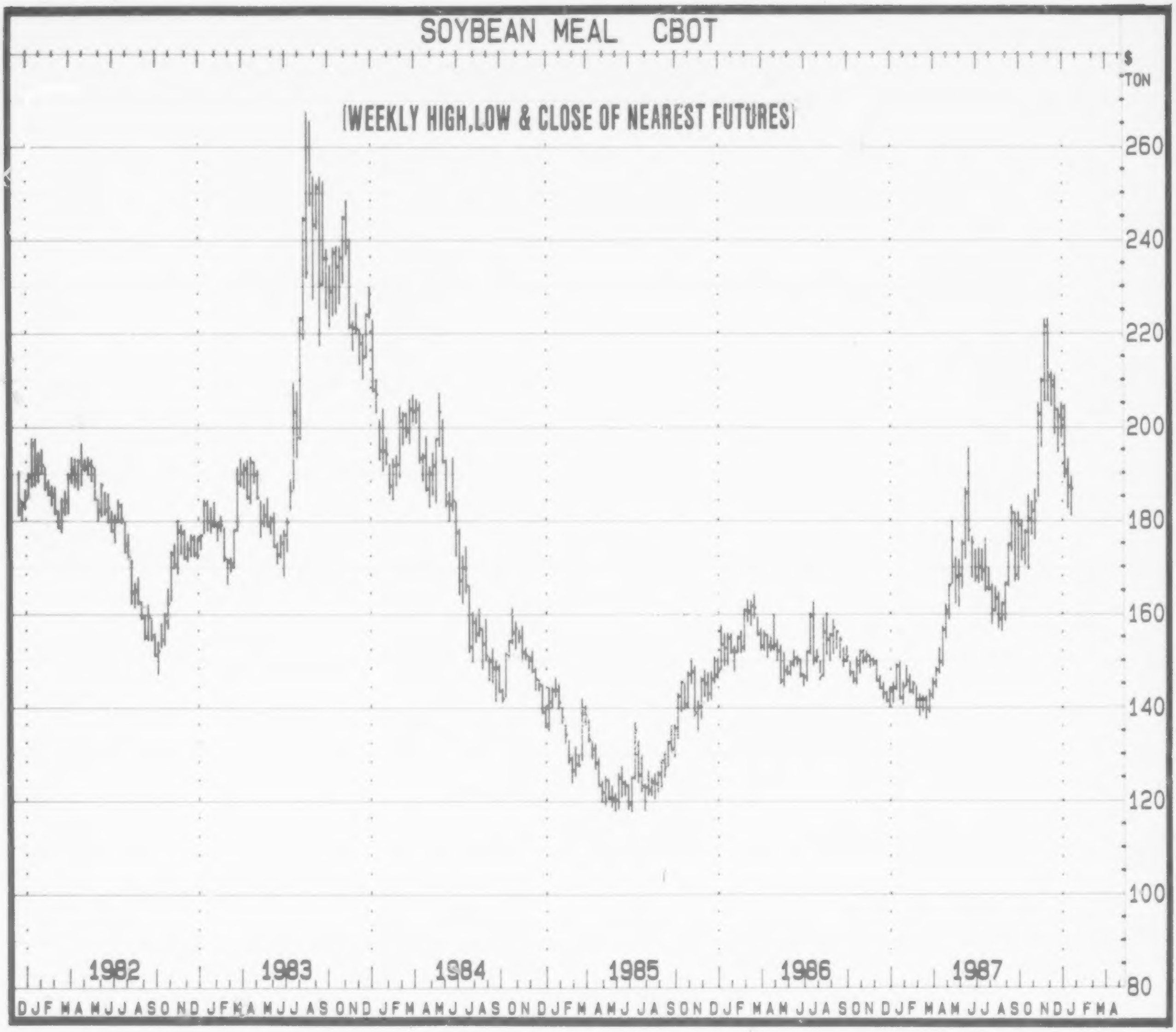
Season Year	Production					Exports			Imports		Consumption			Stocks		
	Brazil	China	EC-12	United States	Total	Brazil	United States	Total	France	Total	EC-12	United States	Total	Brazil	United States	Total
1982–3	10,607	1,370	11,780	24,235	60,520	8,239	6,449	23,290	3,330	23,180	18,100	17,515	59,810	680	430	2,530
1983–4	9,702	1,430	10,120	20,646	55,310	7,706	4,862	21,440	3,399	22,400	17,270	15,983	55,750	984	231	3,060
1984–5	10,190	1,350	9,780	22,252	58,100	8,440	4,460	22,310	3,290	22,760	17,980	17,672	58,840	720	351	2,770
1985–6	9,690	1,500	10,190	22,635	60,080	7,380	5,476	23,050	3,670	24,250	18,860	17,318	61,160	610	192	2,890
1986–7[1]	11,190	1,700	10,900	25,182	65,430	8,370	6,661	25,540	3,660	26,150	19,310	18,495	65,740	520	218	3,200
1987–8[2]	10,780	1,750	10,580	25,909	67,410	7,800	6,804	25,390	3,620	26,190	18,860	19,051	68,250	600	272	3,160

[1] Preliminary. [2] Forecast. *Source: Foreign Agricultural Service, U.S.D.A.* T.607a

Supply and Distribution of Soybean Meal in the United States In Thousands of Short Tons

Year Begin Oct	Supply					Distribution			$ Ton Decatur 44% Solvent	$ Tonne Decatur 44% Solvent	$ Tonne Brazil FOB 45–46% Protein
	For Stocks Oct. 1	Production Total	Production For Animal Feed	Production For Edible Protein Pdt's.	Total Supply	Domestic Feed[2]	Exports	Total			
1982–3	175	26,714			26,889	19,306	7,109	26,415	187.19	206	213
1983–4	474	22,756			23,230	17,615	5,360	22,975	188.20	207	203
1984–5	255	24,529			24,784	19,480	4,917	24,397	125.40	138	141
1985–6	387	24,951			25,338	19,090	6,036	25,126	154.90	171	175
1986–7[1]	212	27,738			27,950	20,350	7,300	27,650	162.50	172	185
1987–8[3]	300	28,360			28,660	21,060	7,300	28,360	162.50	182	193

[1] Preliminary. [2] Includes small quantities used for industrial purposes, estimated at 30,000 tons annually. [3] Estimate.
Source: Economic Research Service, U.S.D.A. T.606



Stocks (at Oil Mills) of Soybean Cake & Meal in the United States In Thousands of Short Tons

Year	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	April 1	May 1	June 1	July 1	Aug. 1	Sept. 1
1975–6	358.3	396.1	441.4	371.4	378.1	419.5	358.3	358.8	462.8	369.8	406.9	350.5
1976–7	354.9	423.5	427.7	353.9	384.7	429.9	412.6	449.0	408.3	390.7	399.0	270.4
1977–8	228.3	270.0	239.8	245.1	251.7	239.7	227.3	308.2	263.3	191.1	262.6	234.1
1978–9	242.9	210.4	178.2	260.5	215.1	198.4	210.4	231.6	207.4	205.3	232.2	140.3
1979–0	224.3	204.1	164.2	207.7	158.7	160.6	219.1	193.9	265.0	262.0	232.4	225.1
1980–1	189.7	211.1	350.0	221.8	209.7	214.4	232.2	184.4	254.0	209.7	156.1	199.7
1981–2	233.8	309.2	314.8	279.4	315.7	324.9	190.3	172.1	309.3	224.9	209.1	189.7
1982–3	175.2	342.8	349.6	332.3	400.2	422.8	341.0	356.1	341.5	272.3	365.2	378.5
1983–4	474.1	419.3	466.8	391.1	475.8	446.7	460.7	418.6	427.2	391.2	355.5	242.7
1984–5	255.4	236.1	285.7	336.8	319.6	334.1	444.6	429.8	495.8	569.6	562.5	458.0
1985–6	386.9	318.4	369.2	358.4	372.4	281.3	386.6	300.8	282.4	278.7	250.6	298.3
1986–7[1]	211.7	218.0	387.3	240.3	311.2	277.5	235.8	244.0	321.7	261.3	292.9	301.3
1987–8[1]	197.8	227.9										

[1] Preliminary. *Sources: Economic Research Service, U.S.D.A.; Bureau of the Census* T.613

U.S. Exports of Soybean Cake & Meal by Country of Destination In Thousands of Metric Tons

Yr. Beg. Oct. 1	Egypt	Venezuela	Canada	Denmark	France	West Germany	Spain	Ireland	Italy	Netherlands	Philippines	Poland	United Kingdom	Yugoslavia	Total
1981–2	10.4	518.0	339.6	0	62.6	630.9	82.3	15.8	947.3	2,201	69.7	0	106.9	84.7	6,266
1982–3	22.5	464.0	401.4	3.5	3.7	1,073	28.6	21.2	953.5	2,066	82.5	57.1	72.7	80.1	6,449
1983–4	14.3	527.2	427.6	0	0	1,154	63.0	4.6	493.0	693.1	293.8	278.5	2.5	8.1	4,862
1984–5	87.0	686.5	489.9	0	0	195.9	73.5	16.2	499.0	905.0	195.6	117.2	56.2	51.3	4,457
1985–6	200.0	566.8	607.3	9.9	15.0	576.0	74.5	4.7	658.2	1,221	164.0	0	59.7	128.8	5,476
1986–7[1]	274.9	628.1	835.1	5.1	53.7	803.5	189.5	40.6	979.7	926.4	124.9	—	73.4	124.7	6,661

[1] Preliminary. *Source: Bureau of the Census, U.S. Dept. of Commerce* T.607

Average Price of Soybean Meal[1] (44% Solvent) at Decatur In Dollars per Short Ton (Bulk)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1981	223.50	212.50	210.40	222.00	221.00	200.90	204.10	202.25	190.00	180.75	178.40	187.50	202.78
1982	191.00	191.00	183.60	190.25	192.40	183.60	181.90	169.00	160.80	157.00	173.40	178.50	179.37
1983	179.75	177.10	177.30	186.75	185.75	175.50	189.30	232.80	233.60	228.60	224.70	216.60	200.64
1984	201.90	184.40	196.40	190.00	187.40	174.40	157.60	151.60	144.90	141.60	135.20	136.75	166.84
1985	135.25	125.20	125.90	117.90	111.50	110.25	144.00	121.40	130.60	138.30	142.50	145.00	126.43
1986	153.25	152.25	163.70	157.00	157.90	158.90	161.00	163.50	165.20	151.90	154.00	149.60	157.35
1987	146.80	154.40	146.60	159.00	174.90	187.10	181.25	169.90	177.20	185.50	206.60		

Source: Consumer Marketing Service, U.S.D.A. T.608

Production of Soybean Cake & Meal in the U.S. In Thousands of Short Tons

Crop Year	Production													Meal in Form of Soybeans[2]
	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Total	
1981–2	2,502	2,326	2,451	2,266	2,077	2,050	1,931	2,066	1,844	1,684	1,620	1,819	24,634	
1982–3	2,386	2,581	2,679	2,628	2,221	2,259	1,950	1,993	1,956	1,934	2,053	2,075	26,714	
1983–4	2,288	2,049	2,123	2,220	1,872	2,029	1,760	1,872	1,665	1,629	1,690	1,559	22,756	
1984–5	2,108	2,326	2,381	2,226	1,887	2,024	1,958	2,101	1,953	1,934	1,832	1,802	24,530	
1985–6	2,218	2,288	2,380	2,344	1,925	2,160	2,008	2,037	1,879	1,977	1,863	1,872	24,951	
1986–7[1]	2,521	2,563	2,527	2,590	2,410	2,489	2,256	2,246	2,135	2,185	1,949	1,799	27,670	
1987–8[1]	2,327													

[1] Preliminary. [2] Calculated at 47.5 lbs of meal per bushel. *Sources: Economic Research Service, U.S.D.A.; Bureau of Census.* T.609

Month–End Open Interest of Soybean Meal Futures at the Chicago Board of Trade In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1981	53,077	50,584	47,002	51,831	45,160	50,909	45,901	48,379	48,152	47,619	48,140	38,804
1982	41,034	39,700	43,830	45,035	45,481	45,877	47,094	50,823	46,833	44,740	47,300	46,016
1983	50,744	44,808	52,979	46,653	42,893	40,900	50,340	66,826	64,266	64,124	63,461	60,248
1984	55,566	54,875	64,511	58,259	74,576	61,051	48,893	48,410	43,264	47,877	46,919	37,167
1985	39,110	43,110	45,164	48,579	54,103	53,405	41,451	44,260	40,703	46,091	42,925	46,875
1986	43,681	48,404	49,219	49,060	46,708	53,813	50,539	51,857	50,791	56,566	57,794	56,475
1987	64,057	70,403	63,315	67,482	64,661	60,709	51,454	46,696	57,538	63,850	82,040	68,170

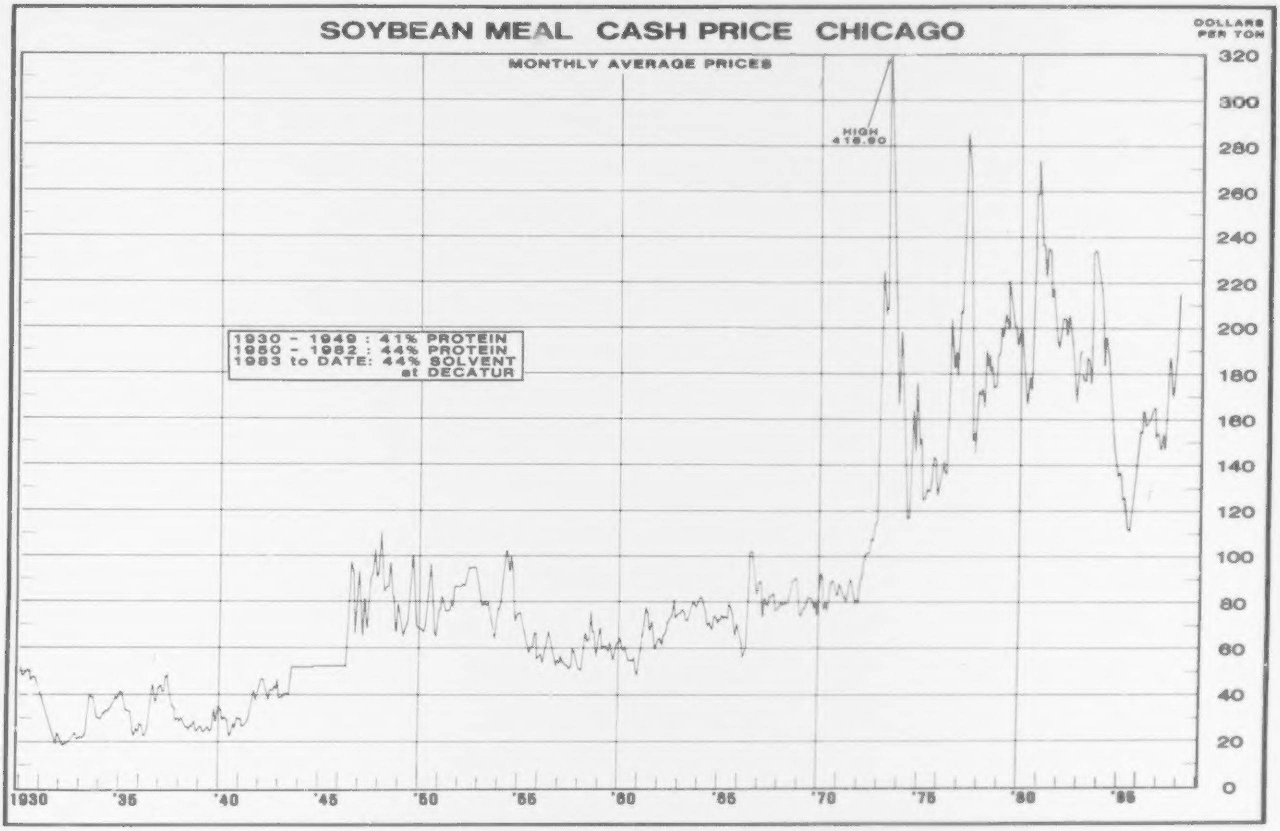
Source: Chicago Board of Trade T.610

Volume of Trading of Soybean Meal Futures at the Chicago Board of Trade In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1981	261.9	203.1	220.9	254.3	218.4	294.8	301.8	241.3	276.3	219.0	242.8	304.4	3,040
1982	219.6	238.1	258.6	279.7	197.3	244.0	229.9	225.1	198.8	241.0	233.4	218.9	2,784
1983	269.2	248.0	252.7	272.9	238.6	259.5	320.5	528.2	447.6	349.4	413.1	271.8	3,872
1984	298.8	283.3	299.6	355.5	449.0	424.0	382.2	307.5	271.2	246.3	266.7	237.3	3,822
1985	252.1	232.6	244.5	283.9	285.0	277.3	420.9	250.7	268.5	287.5	292.3	243.9	3,339
1986	260.2	252.9	218.2	289.3	260.6	242.1	292.5	274.6	222.7	292.3	209.3	234.8	3,049
1987	260.4	211.6	222.6	305.3	353.3	430.1	307.8	247.1	334.7	388.7	385.5	350.9	3,798

Source: Chicago Board of Trade T.611

SOYBEAN MEAL



High, Low & Closing Prices of May Soybean Meal Futures on the Chicago Board of Trade $ per Ton

Year of Delivery		Year Prior to Delivery										Delivery Year					Life of Delivery Range
		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1981	High	206.5	200.5	201.0	205.0	238.0	242.5	265.0	299.0	300.5	294.8	259.5	232.5	224.0	231.7	230.2	300.5
	Low	193.0	191.0	191.5	190.3	205.0	217.0	241.0	244.3	275.0	220.7	213.7	214.5	205.2	216.9	214.0	190.3
	Close	195.2	195.5	192.0	205.0	229.6	242.5	251.7	290.2	292.7	249.0	220.7	215.2	220.8	226.9	214.0	—
1982	High	—	261.5	252.0	242.0	241.0	230.0	218.0	210.5	206.5	203.5	197.0	197.7	188.5	196.0	196.5	261.5
	Low	—	248.5	234.5	221.0	223.0	207.0	203.5	201.8	194.1	181.5	187.8	182.7	178.4	186.2	188.0	181.5
	Close	—	249.5	239.0	225.0	231.5	209.0	206.5	203.5	197.3	188.3	195.9	186.1	187.7	190.9	189.0	—
1983	High	—	215.0	210.0	205.5	199.0	195.5	176.0	169.0	180.5	178.5	186.0	186.1	192.8	193.3	190.3	215.0
	Low	—	203.0	201.5	197.0	189.5	171.0	165.3	160.3	166.5	171.3	174.1	170.6	172.5	183.3	176.1	160.3
	Close	—	209.5	201.5	197.7	192.0	174.0	166.5	166.0	178.0	175.2	185.6	171.4	189.7	189.4	181.3	—
1984	High	219.5	217.5	213.0	198.0	229.0	267.5	261.0	246.0	249.6	229.5	221.5	201.5	210.0	205.4	199.0	267.5
	Low	213.5	207.5	194.2	185.0	194.0	218.8	229.0	229.5	220.0	212.2	193.2	188.9	200.5	182.5	183.0	182.5
	Close	215.2	211.5	194.2	195.0	216.2	244.0	240.0	232.0	226.7	225.0	197.4	200.7	202.9	183.8	198.4	—
1985	High	—	204.5	195.7	201.0	197.0	180.0	172.0	175.0	173.3	165.5	154.0	147.0	141.5	137.0	124.9	204.5
	Low	—	196.0	190.5	188.2	169.5	167.5	160.0	160.5	163.0	150.1	145.6	129.5	130.1	120.1	118.5	118.5
	Close	—	196.0	198.0	200.5	171.3	171.0	162.0	169.7	164.8	151.1	147.6	130.3	138.1	120.5	118.6	—
1986	High	—	162.5	154.3	151.5	158.0	139.5	145.2	151.9	152.5	157.0	160.5	161.5	163.9	159.5	156.5	163.9
	Low	—	152.8	145.0	143.0	135.5	132.5	134.0	139.0	136.0	141.5	150.0	150.3	153.5	150.5	144.3	132.5
	Close	—	152.8	146.2	143.7	137.0	135.5	141.0	151.0	145.0	153.4	154.0	161.2	153.7	157.2	149.6	—
1987	High	—	165.5	169.7	154.0	158.5	155.4	157.1	155.5	151.8	149.0	145.8	143.3	143.5	161.9	179.5	179.5
	Low	—	149.7	152.0	146.5	143.0	148.0	152.1	148.7	148.6	141.5	139.2	135.6	135.8	143.6	158.8	135.6
	Close	—	165.2	153.2	146.5	154.7	155.3	155.0	151.8	149.0	145.5	140.0	136.9	143.1	160.9	168.0	—
1988	High	—	163.5	188.0	199.0	170.0	156.5	167.5	171.0	195.5	196.5						
	Low	—	155.0	162.0	168.0	157.0	148.0	154.0	157.2	163.3	177.0						
	Close	—	163.5	173.0	169.5	160.2	152.9	163.7	167.2	192.2	185.2						

Source: Chicago Board of Trade

T.612

Soybean Oil

World soyoil production in 1987/88 was projected by USDA at 14.86 million tonnes, up 1 percent from 1986/87. World production of all vegetable and marine oils was forecast at 51.14 million tonnes, 3 percent above the previous season. Soyoil's share was 29 percent, about the same as in recent years.

The U.S. is the largest soyoil producer, accounting for 40 percent of world output in 1987/88. Other major producers are Brazil, the European Community, and Argentina.

World soyoil consumption has been rising, because of population growth and dietary improvements. Total consumption was placed at 14.59 million tonnes, up 3 percent from 1986/87. Fast growth is occurring in Asia, where soyoil use is expanding at about twice the pace of the rest of the world. Consumption in Pakistan and Bangladesh is high.

World soyoil exports in 1987/88 were put at 3.77 million tonnes, 3 percent less than a year earlier. Lower Brazilian exports accounted for most of the decline. Brazil was expected to ship 740,000 tonnes of soyoil, compared to 950,000 tonnes in 1986/87. The European Community was also expected to export less, while Argentina was anticipated to ship more. Soyoil is the second most widely traded vegetable oil, with 22 percent of total world oil trade. Palm oil is the leader, with a share of 33 percent.

Global soyoil stocks in 1987/88 were estimated at 2.11 million tonnes, up 10 percent from a year earlier. The U.S. continued to hold the bulk.

U.S. soyoil production in 1987/88 was estimated by USDA at 13.07 billion pounds, 2 percent more than a year earlier. With huge carry-in stocks of 1.73 billion pounds, the U.S. soyoil supply was put at 14.8 billion pounds, 8 percent higher than a year earlier. Large stocks and low prices were expected to encourage use over the remainder of the season.

Projected domestic use was 11.25 billion pounds, 4 percent more than in 1986/87. Competition from other oils was expected to be mixed. More cottonseed oil was available, but this was offset by less sunseed oil. Imported oils like palm, coconut, and rapeseed oil continued to make inroads, and provided soyoil with strong price competition.

U.S. soyoil exports were projected by USDA to rise to 1.4 billion pounds, up 23 percent from a year earlier. The trend in soyoil exports had been lower in recent years, but that appeared to be changing in 1987/88. The U.S. has often used subsidized credit to export soyoil, and has recently sold soyoil under the Export Enhancement Program. Under the program, offers were made to Algeria, Tunisia, Morocco, and others. A severe drought in India indicated that the U.S. would export to that potentially large market in 1987/88. Major buyers of U.S. soyoil have been Pakistan, the Dominican Republic, Morocco, and Bangladesh.

Despite a rise in usage, U.S. ending stocks of soyoil in 1987/88 were projected to reach 2.15 billion pounds, 25 percent above a year earlier.

Futures Market

Soybean oil futures and options are traded on the Chicago Board of Trade (CBOT).

World Supply & Demand of Soybean Oil In Thousands of Metric Tons

Crop Year	Production				Exports			Imports		Consumption					Stocks[3]	
	Brazil	EC-12	United States	Total	Brazil	United States	Total	India	Total	Brazil	EC-12	India	United States	Total	United States	Total
1981–2	2,406		4,980	12,730	852	942	3,510	460	3,440	1,542		550	4,325	12,950	500	1,370
1982–3	2,564	2,580	5,462	13,570	1,020	918	3,810	537	3,650	1,612	1,550	540	4,472	13,230	572	1,540
1983–4	2,350	2,260	4,932	12,770	987	827	3,970	810	3,890	1,510	1,350	760	4,350	12,960	327	1,270
1984–5	2,460	2,220	5,202	13,280	980	753	3,660	400	3,490	1,550	1,390	570	4,498	13,020	287	1,380
1985–6	2,350	2,250	5,269	13,620	450	570	3,150	250	3,210	1,940	1,360	470	4,560	13,400	430	1,650
1986–7[1]	2,700	2,390	5,798	14,760	450	538	3,950	360	3,490	1,950	1,420	500	4,915	14,100	782	1,850
1987–8[2]	2,610	2,310	5,976	15,190	760	726	3,850	360	3,590	1,940	1,410	530	5,102	14,720	930	2,070

[1] Preliminary. [2] Forecast. [3] End of season. *Source: Foreign Agricultural Service, U.S.D.A.* T168b

Production, Consumption, Stocks and Foreign Trade of Soybean Oil in the U.S. In Millions of Pounds

Year	Production		Consumption		Stocks December 31		Imports for Consumption	Exports	
	Crude	Refined	In Refining	In End Pdt's	Crude	Refined		Crude	Refined
1979	11,504	9,110	9,456	8,656	656.6	373.5	—	2,489	
1980	12,097	8,982	9,300	8,585	1,369.6	368.2	—	2,417	
1981	11,301	9,461	9,817	9,024	1,680.2	343.6	—	1,805	
1982	11,183	9,671	10,042	9,307	1,241.1	345.6	—	2,057	
1983[1]	11,653	9,590	9,939	9,418	1,559.3	360.0	—	1,732	
1984[1]	11,004	9,716	9,986	9,932	500.2	276.9	—		
1985[1]	11,496	9,863	10,200	10,499	704.5	264.9	—		
1986[1]	11,916	9,838	10,194	10,305	1,225.9	280.6			

[1] Preliminary. *Source: Bureau of Census* T.614

U.S. Exports of Soybean Oil,[1] by Country of Destination In Thousands of Metric Tons

Yr. Beg. Oct. 1	Australia	Colombia	Canada	Venezuela	Ecuador	Ethiopia	Haiti	Peru	India	Israel	Mexico	Morocco	Pakistan	Panama	Egypt	Grand Total
1978–9	16.2	84.1	20.9		22.4		17.2	29.4	181.1	9.8	5.1	6.0	163.3	19.0	13.9	1,059
1979–0	16.4	82.6	14.8		35.3		22.8	36.2	427.7	9.6	31.4	2.3	147.4	17.9	6.0	1,220
1980–1	16.5	60.3	7.8		38.6		22.4	41.2	61.8	5.2	21.6	5.0	125.7	14.7	3.4	740
1981–2	22.6	77.4	5.4	42.7	36.2		8.8	46.8	68.4	.3	91.1	9.7	259.9	21.7	6.9	942
1982–3	5.0	69.5	7.5	55.9	50.4		20.4	70.2	54.9	.4	16.3	9.0	236.7	16.4	3.5	918
1983–4	.3	24.8	9.8	50.5	41.1		12.5	24.9	169.4	.5	68.1	2.5	216.1	15.7	3.6	827
1984–5	.2	22.2	12.9	51.9	44.7	24.0	16.1	11.4	62.8	.9	45.4	3.8	168.4	8.0	3.9	753
1985–6	.2	8.9	6.1	17.1	16.7	17.3	9.5	1.6	37.6		49.1	3.2	274.9	2.8	4.9	570
1986–7[2]	.4	.5	6.9	18.7	18.8	.6	15.3	1.3	47.1		21.9	59.5	146.7	3.0	1.9	538

[1] Crude & refined oil combined as such. [2] Preliminary. *Source: The Bureau of the Census, U.S. Dept. of Commerce.* T.615

Supply & Distribution of Soybean Oil in the U.S. In Millions of Pounds

Year Begin. Oct.	Production	Stocks Oct. 1	Exports & Shipments	Domestic Disappearance											Total Disappearance
					Food					Non-Food					
				Total Domestic	Shortening	Margarine	Cooking & Salad Oils	Other Edible	Total Food	Paint & Varnish	Resins & Plastics	Fatty Acids	Other Inedible	Total Non-Food	
1978–9	11,323	729	2,411	8,942	2,480	1,593	3,825								11,276
1979–0	12,105	776	2,690	8,981	2,680	1,643	4,060								11,671
1980–1	11,270	1,210	1,631	8,610	2,675	1,666	4,226	43	8,610	46	71			202	10,744
1981–2	10,979	1,736	2,077	9,536	2,991	1,723	4,368	51	9,133	39	94			209	11,612
1982–3	12,040	1,103	2,025	9,857	2,944	1,615	4,668	58	9,284	38	96			205	11,882
1983–4	10,872	1,261	1,824	9,588	3,207	1,494	4,442	101	9,245	39	110			231	11,412
1984–5	11,468	721	1,660	9,917	3,655	1,589	4,800	129	10,172	52	93	29		252	11,577
1985–6[1]	11,617	632	1,257	10,053	3,440	1,735	4,686	138	10,004	60	99	32		280	11,310
1986–7[2]	12,793	947	1,100	10,800	3,300	1,650	5,000	140	10,100						11,900
1987–8[2]	13,000	1,840	1,400	11,200											12,600

[1] Preliminary. [2] Forecast. *Source: Economic Research Service, U.S.D.A.* T.623

U.S. Production of Crude Soybean Oil In Millions of Pounds

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1978–9	984.3	974.8	1,050	989.1	902.3	982.2	939.6	964.7	930.5	899.9	856.7	849.9	11,324
1979–0	1,020	1,068	1,102	1,115	1,065	1,098	993.7	1,010	901.6	927.8	913.8	890.1	12,105
1980–1	1,080	1,078	1,024	1,011	887.8	991.3	954.2	914.9	830.7	815.8	827.2	855.6	11,271
1981–2	1,125	1,018	1,070	995.6	917.7	912.1	866.8	930.2	828.4	765.6	732.0	818.3	10,979
1982–3	1,079	1,145	1,191	1,167	997.0	1,015	881.3	908.9	891.3	888.0	930.2	945.3	12,040
1983–4	1,081	957.7	990.9	1,053	896.9	972.7	846.7	906.3	803.5	788.8	819.4	755.9	10,872
1984–5	995.5	1,072	1,096	1,027	879.0	946.0	917.6	983.3	918.9	912.6	868.8	853.4	11,470
1985–6	1,040	1,053	1,096	1,086	894.8	1,005	935.4	953.3	881.9	909.5	875.3	886.7	11,618
1986–7[1]	1,163	1,172	1,152	1,186	1,110	1,149	1,047	1,038	980.9	1,014	891.3	881.4	12,785
1987–8[1]	1,120												

[1] Preliminary. *Source: Bureau of the Census* T.618

U.S. Production of Refined Soybean Oil In Millions of Pounds

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1979–0	805.9	797.6	760.3	801.9	760.5	767.7	687.1	712.8	669.0	720.3	760.7	764.5	9,038
1980–1	784.1	760.5	763.1	741.6	706.3	833.9	741.2	754.9	812.9	765.4	813.3	812.1	9,289
1981–2	833.6	840.9	805.2	768.7	767.6	866.4	754.5	817.3	866.3	775.4	811.7	794.0	9,702
1982–3	824.6	827.8	795.1	784.1	727.1	841.8	800.9	843.1	824.0	778.7	837.7	828.8	9,714
1983–4	839.2	747.2	737.1	797.9	813.2	841.8	763.8	859.5	794.6	767.9	752.2	760.9	9,475
1984–5	907.6	835.5	821.2	838.7	796.1	835.5	865.0	899.5	773.1	763.9	806.2	794.4	9,937
1985–6	865.7	834.8	790.0	804.2	751.1	819.5	783.0	808.5	816.8	780.2	830.1	834.8	9,719
1986–7[1]	911.3	848.1	850.0	790.2	771.0	900.7	871.2	826.9	871.3	921.8	898.6	946.5	10,408
1987–8[1]	975.5	928.1											

[1] Preliminary. *Source: Bureau of the Census* T.617

Soybean Oil Consumption in End Products in the U.S. In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	664.1	648.8	771.7	686.5	662.4	640.5	596.2	699.8	672.5	715.9	709.3	707.5	8,175
1979	695.1	636.2	755.3	682.4	775.0	701.6	711.4	744.8	700.9	781.4	742.2	730.1	8,656
1980	750.7	719.4	762.9	671.6	693.6	683.7	671.2	754.5	737.1	719.1	682.6	738.7	8,585
1981	698.7	680.7	775.1	722.3	728.7	774.0	741.1	755.1	796.4	796.8	783.6	749.3	9,002
1982	740.0	737.7	809.6	715.2	761.0	834.6	775.2	811.9	820.5	799.9	763.1	733.2	9,302
1983	761.6	702.2	827.3	765.9	814.9	830.3	745.1	847.0	894.3	812.7	711.4	705.2	9,418
1984	827.6	821.7	837.8	781.1	857.4	824.4	744.7	772.2	780.6	932.0	883.4	856.1	9,919
1985	989.0	804.0	867.1	885.9	940.8	810.5	825.9	856.1	863.7	922.4	864.2	851.6	10,481
1986[1]	836.7	794.0	889.7	849.1	850.3	856.8	835.1	843.1	890.3	930.3	840.6	891.2	10,307
1987[1]	800.9	799.4	862.0	869.6	824.4	918.9	932.7	902.9	949.6	961.4	872.1		

[1] Preliminary. *Source: Bureau of the Census*

T.624

U.S. Exports of Soybean Oil (Crude & Refined) In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	113.1	141.8	252.6	218.9	176.4	147.2	165.5	108.8	193.4	96.8	154.8	175.4	1,945
1979	219.1	249.8	199.0	185.6	107.3	299.0	166.2	187.4	159.1	127.8	208.5	261.9	2,371
1980	173.4	250.0	325.4	269.6	327.3	194.6	109.7	175.7	171.2	112.5	84.7	120.5	2,315
1981	116.0	113.8	202.8	76.1	109.6	108.8	93.1	291.7	97.9	187.2	146.6	184.3	1,698
1982	43.9	176.7	126.5	148.5	103.3	208.0	270.2	237.4	244.1	181.1	174.9	142.0	2,057
1983	124.0	225.9	90.4	305.7	127.5	94.1	208.9	125.1	225.1	55.1	54.7	95.5	1,732
1984	161.3	289.9	258.9	163.3	208.3	157.3	140.0	73.0	156.3	200.3	214.6	189.6	2,068
1985	66.7	198.3	184.9	66.9	52.4	138.8	174.4	70.1	102.8	125.4	38.1	74.3	923.3
1986	80.6	100.7	92.8	124.0	50.7	115.1	44.6	187.7	223.4	118.2	27.4	22.8	1,188
1987[1]	67.9	74.0	52.1	28.2	47.4	85.0	175.6	261.0					

[1] Preliminary. *Source: Dept. of Commerce*

T.619

U.S. Stocks of Soybean Oil (Crude & Refined) at Factory & Warehouses In Millions of Pounds

Year	Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	April 1	May 1	June 1	July 1	Aug. 1	Sept. 1
1978–9	728.6	813.4	837.1	970.6	932.2	942.8	1,004	987.3	1,043	922.9	915.4	815.1
1979–0	775.8	819.8	867.3	1,030	1,155	1,205	1,176	1,184	1,145	1,226	1,305	1,263
1980–1	1,210	1,428	1,677	1,738	1,900	1,976	2,017	2,119	2,166	2,139	2,024	1,783
1981–2	1,736	1,790	1,884	2,024	2,160	2,141	2,141	2,112	2,018	1,889	1,647	1,398
1982–3	1,103	1,208	1,305	1,587	1,713	1,700	1,842	1,600	1,552	1,546	1,411	1,408
1983–4	1,261	1,453	1,661	1,919	1,907	1,583	1,520	1,380	1,203	1,012	989.6	871.0
1984–5	720.5	597.2	580.1	777.1	883.6	723.9	715.6	666.0	706.7	731.9	724.2	715.7
1985–6	632.4	636.1	810.4	969.4	1,167	1,181	1,247	1,219	1,360	1,225	1,321	1,152
1986–7[1]	946.6	963.6	1,269	1,507	1,837	2,017	2,352	2,344	2,416	2,339	2,184	1,979
1987–8[1]	1,725	1,661	1,830									

[1] Preliminary. *Source: Bureau of the Census*

T.616

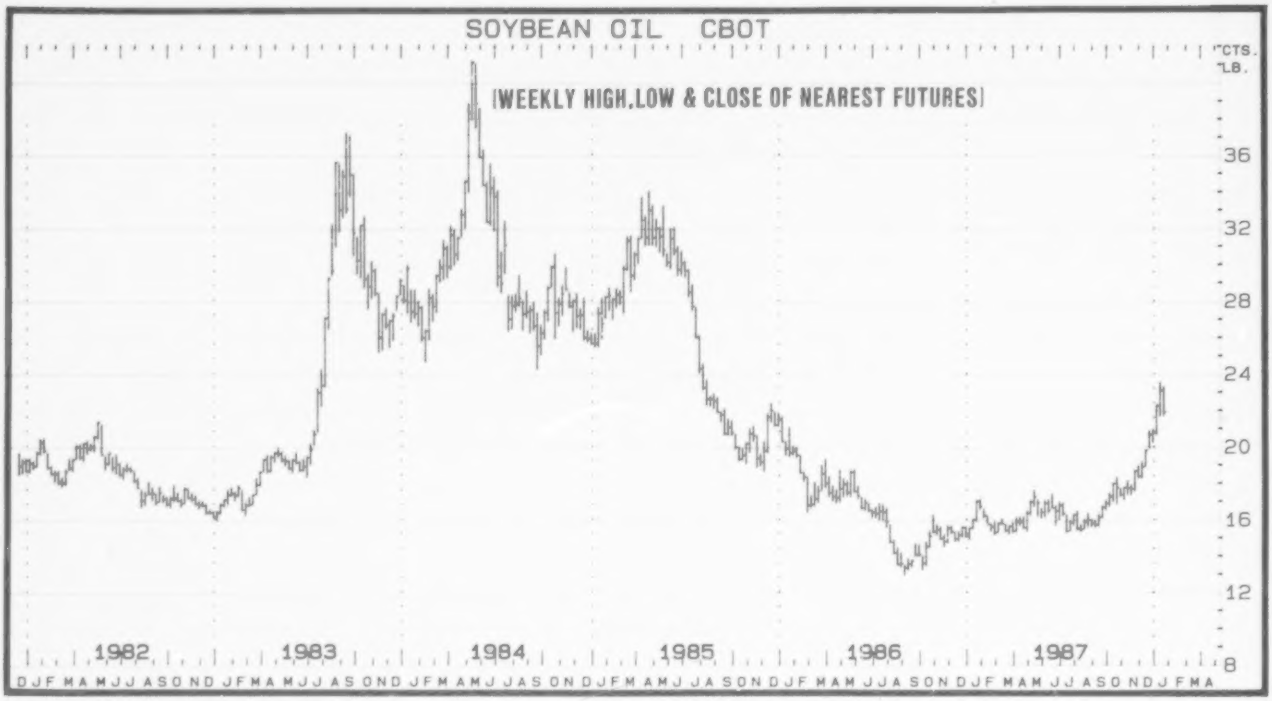
Average Prices of Crude Domestic Soybean Oil (in Tank Cars) F.O.B. Decatur In Cents per Pound

Year	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
1978–9	26.7	23.7	25.8	25.8	27.3	26.9	26.7	27.8	27.4	29.1	29.2	30.0	27.2
1979–0	27.9	27.8	26.2	23.6	23.4	22.1	20.3	20.8	21.6	26.2	25.9	26.1	24.3
1980–1	25.1	26.7	23.7	23.0	22.0	23.1	23.4	21.6	21.3	22.8	20.8	19.4	22.7
1981–2	19.7	19.9	18.9	18.4	18.2	18.5	19.7	20.6	19.4	19.0	17.9	17.4	19.0
1982–3	17.4	17.6	16.6	16.4	17.3	17.7	19.3	19.8	19.4	21.6	30.2	34.3	20.6
1983–4	30.7	28.1	27.3	28.3	27.2	30.1	32.1	39.0	36.0	31.0	29.0	28.0	30.6
1984–5	30.6	31.9	28.4	28.0	29.6	31.3	33.6	32.5	32.5	29.1	24.1	22.6	29.5
1985–6	20.7	20.6	21.4	20.6	18.6	17.6	17.7	17.8	16.8	16.2	14.3	13.9	18.0
1986–7	14.6	14.9	14.9	15.6	15.4	15.2	15.3	16.2	16.0	15.4	16.2	15.6	15.4
1987–8	16.8	17.2											

Source: Bureau of Labor Statistics

T.620

SOYBEAN OIL

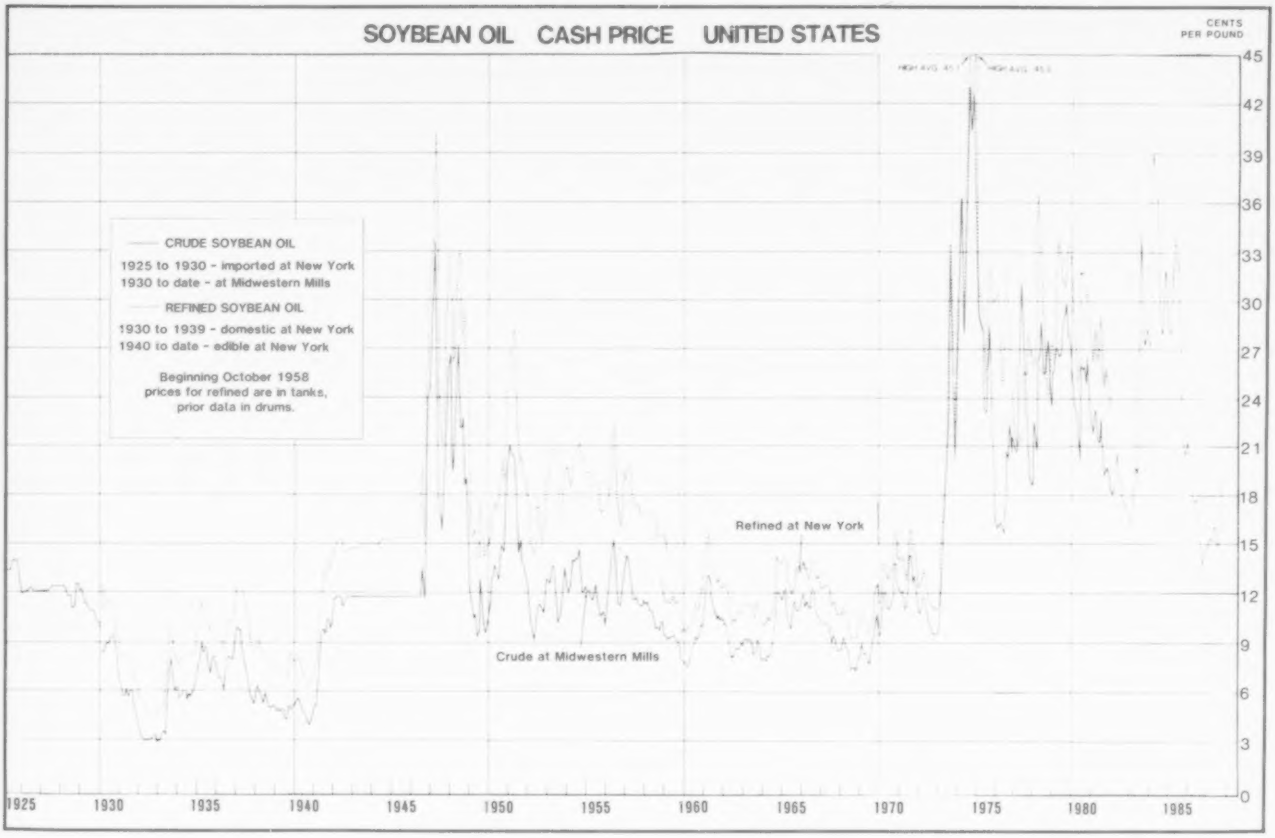


High, Low & Closing Prices of May Soybean Oil Futures on the Chicago Board of Trade ¢ per lb.

Year of Delivery		Year Prior to Delivery										Delivery Year					Life of Delivery Range
		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1982	High	28.60	29.02	28.10	26.50	27.90	25.90	24.50	24.25	23.25	21.85	21.01	21.08	19.45	20.25	20.90	29.02
	Low	27.13	27.75	26.30	24.70	24.85	23.50	22.52	22.45	21.20	19.65	19.70	18.72	18.26	18.88	19.70	18.26
	Close	28.60	27.75	26.35	25.02	25.90	23.60	22.87	23.00	21.21	19.76	20.88	19.13	18.88	19.83	20.72	—
1983	High	—	—	22.90	21.65	20.42	19.90	19.35	18.60	18.40	17.75	17.96	18.30	18.59	19.64	19.85	22.90
	Low	—	—	21.66	20.30	19.73	18.15	18.00	17.50	17.25	16.91	16.61	16.65	16.80	18.54	18.92	16.61
	Close	—	—	21.66	20.32	19.73	18.85	18.00	17.60	17.48	16.91	17.91	16.74	18.56	19.61	19.29	—
1984	High	—	21.60	21.60	20.75	25.25	34.00	35.85	22.60	30.70	30.10	30.60	28.82	31.55	33.70	41.15	41.15
	Low	—	20.75	19.27	19.75	20.50	25.05	29.90	28.35	26.20	26.50	27.00	25.05	27.72	29.70	31.97	19.27
	Close	—	21.53	20.20	20.75	24.30	32.75	31.00	28.88	27.74	30.08	27.68	28.25	29.82	32.47	39.87	—
1985	High	—	—	29.95	30.10	27.15	27.45	26.50	25.75	26.10	25.60	27.20	27.70	30.60	34.00	33.27	34.00
	Low	—	—	28.10	26.92	23.15	24.35	22.80	23.85	23.78	23.95	24.40	26.30	26.15	30.05	30.65	22.80
	Close	—	—	28.88	27.92	24.35	26.70	23.80	25.07	24.55	24.61	26.67	27.26	30.52	32.53	32.93	—
1986	High	24.40	27.85	27.45	25.80	25.40	24.20	22.65	22.15	21.60	23.04	22.50	20.30	19.27	19.25	18.50	27.85
	Low	24.40	24.40	24.40	24.20	23.90	22.30	21.45	20.02	19.25	19.30	19.91	16.76	16.96	16.90	17.22	16.76
	Close	24.40	27.20	24.53	24.86	24.25	22.60	22.20	20.92	19.60	22.01	20.14	17.06	19.24	18.65	17.50	—
1987	High	20.60	20.90	19.75	18.71	18.40	17.35	15.80	16.75	16.35	16.30	17.38	17.20	16.30	16.14	17.60	20.90
	Low	18.38	18.48	18.50	17.65	17.20	14.75	14.40	14.60	15.27	15.50	15.45	15.84	15.21	15.30	15.95	14.40
	Close	20.60	19.95	18.68	17.65	17.20	14.90	15.43	15.95	16.19	15.76	17.00	15.91	15.59	15.92	16.56	—
1988	High	—	—	19.25	19.00	18.40	17.50	18.04	19.30	19.55	21.55						
	Low	—	—	17.77	17.50	16.85	16.50	16.80	17.81	17.86	19.00						
	Close	—	—	17.82	18.15	17.38	16.95	17.75	18.08	19.30	21.41						

Source: Chicago Board of Trade

T.622


SOYBEAN OIL CASH PRICE UNITED STATES

Month–End Open Interest of Soybean Oil Futures of the Chicago Board of Trade In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1979	50,713	57,729	57,893	55,657	57,820	64,671	58,852	58,258	60,854	67,778	65,893	64,374
1980	62,515	63,472	59,707	52,805	61,089	65,949	64,710	63,908	66,723	75,815	91,407	71,527
1981	58,671	65,580	57,956	67,241	56,968	63,400	54,007	56,847	49,411	50,786	54,232	48,295
1982	53,029	53,375	49,824	53,395	57,366	58,151	56,863	50,574	44,091	41,930	45,976	50,290
1983	49,329	49,360	57,446	59,894	58,635	55,678	53,842	71,341	73,946	79,303	74,817	67,695
1984	58,227	54,536	53,081	60,190	65,570	58,857	49,323	46,848	41,617	40,386	43,856	40,264
1985	38,534	44,803	48,093	60,717	58,629	59,856	41,451	56,313	48,963	45,951	44,186	48,361
1986	50,584	55,010	57,640	57,825	54,035	61,808	62,011	59,429	53,720	66,372	72,037	63,797
1987	85,826	77,627	73,653	77,508	81,405	88,656	77,028	68,039	66,938	69,040	80,398	76,229

Source: Chicago Board of Trade T.625

Volume of Trading of Soybean Oil Futures at the Chicago Board of Trade In Thousands of Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	215.0	291.5	233.8	254.4	212.3	321.7	313.0	252.5	262.0	311.6	222.3	191.6	3,082
1980	200.7	210.3	177.1	185.0	198.2	216.9	361.8	284.8	329.9	332.6	327.0	343.7	3,168
1981	243.8	231.1	237.9	254.0	221.7	274.8	355.1	233.7	240.2	235.0	228.1	292.1	3,047
1982	219.1	245.6	239.8	272.2	277.7	270.7	264.5	294.9	260.5	195.4	307.4	221.6	3,049
1983	273.6	244.1	264.4	273.2	233.1	288.9	332.6	452.3	445.4	378.7	355.5	316.7	3,859
1984	358.3	346.5	337.7	360.0	513.7	436.7	353.6	280.8	244.2	269.5	288.0	220.5	4,010
1985	264.2	256.0	311.6	405.0	416.4	308.7	341.1	281.5	233.0	270.0	281.5	278.4	3,647
1986	263.1	235.9	254.0	311.7	273.8	262.0	296.0	237.9	202.7	324.8	261.4	259.6	3,183
1987	347.3	304.8	267.7	303.4	374.2	363.9	356.3	267.6	301.1	349.8	315.1	361.2	3,912

Source: Chicago Board of Trade T.626

Soybeans

Soybeans account for 50 percent of world production of oilseeds. Cottonseed is the second major oilseed, accounting for about 15 percent. Total output of major oilseeds world-wide in 1987/88 was estimated at 202.8 million tonnes, 4 percent above a year earlier. World soybean production was expected to be 101.4 million tonnes, up 3 percent.

The U.S. accounted for about 51 percent of global soybean output in 1987/88. South American producers were expected to provide over 28 percent. Brazil's crop was estimated by USDA at 18.5 million tonnes, 7 percent above 1986/87. Brazilian producers have switched out of corn and rice and into soybeans, which have greater value as an export crop. Argentina's output was put at 9 million tonnes, up 23 percent from the previous season. Paraguay's crop was projected at 1 million tonnes.

World soybean trade in 1987/88 was expected to equal the previous year's active pace. Global exports were put at 28.9 million tonnes, up 1 percent from the previous season. The U.S. remained the largest exporter, with a market share of 72 percent. Other exporters, particularly Brazil and Argentina, have tended to reduce bean exports to process beans for oil and meal instead. These value-added products are then exported. In 1987/88, Brazil was expected to ship enough soybeans that processors would have to import about 400,000 tonnes late in the season. The leading soybean importers are West Germany, the Netherlands, Spain, and Japan.

The 1987/88 world soybean crush was projected by USDA at 86.8 million tonnes, up 3 percent from the previous season. The overall trend in crushing has been higher, reflecting population growth, dietary improvements, and expanded livestock production. The leading soybean processors are the U.S., Brazil, the EC, and Argentina. Some of the fastest growth in processing has occurred in Asia. World ending stocks of soybeans in 1987/88 were estimated at 17.6 million tonnes, 13 percent less than a year earlier. Stocks remained burdensome, and the U.S. was expected to hold 47 percent of world inventories.

The 1987/88 U.S. crop was estimated by USDA at 1.90 billion bushels, 2 percent less than 1986/87's. Harvested acreage was 56.4 million, compared with 58.3 million in 1986 and 61.6 million in 1985. As more marginal acreage is pulled from production, yield potential is higher. The 1987/88 crop had a national yield of 34 bu./acre, versus 33.3 bushels a year earlier. This was much above the average in recent years. Weather was excellent in most areas, in stark contrast to the previous season, when the Southeast and Delta states had a severe drought.

U.S. carry-in stocks on September 1, 1987, were 436 million bushels, 19 percent less than a year earlier. With a smaller crop, total supplies of beans were 2.34 billion bushels, 5 percent less than a year before.

As slightly higher prices were anticipated in 1987/88, usage was expected to trail 1986/87 levels somewhat. The crush was estimated at 1.18 billion bushels, the same as a year earlier. Processing margins were the highest in years, giving crushers the economic incentive to process more beans. Demand for meal was strong, especially with large purchases by the USSR, but a huge supply of soyoil was holding the crush rate back. Improved export demand for soyoil appeared to be the key to increasing the crush. Developments in South America, particularly Brazil, were expected to partly determine the amount of processing that would occur in late 1987/88.

Soybean exports in 1987/88 were projected at 760 million bushels, near the previous season. Major U.S. markets were Japan, the Netherlands, and Spain. Export potential was enhanced by the soft dollar, but increased world production of other oilseeds was expected to work against U.S. soybean exports. In particular, an increase in the EC rapeseed crop was likely to reduce demand for U.S. soybeans. Because of a glut of vegetable oils, the EC had been importing soymeal instead of soybeans. Anticipated increases in the South American crops were expected to affect U.S. soybean exports in the late spring and summer of 1988.

While total U.S. soybean usage was forecast at near the same level as the previous season, the smaller 1987/88 supply was expected to leave ending stocks at 305 million bushels, down 30 percent. Commodity Credit Corporation stocks were drawn down to negligible levels during the season.

The price-support loan rate for 1987-crop soybeans was unchanged from the previous season at $4.77/bu.

Futures Markets

Soybean futures and options are traded on the Chicago Board of Trade (CBOT).

World Production of Soybeans In Thousands of Metric Tons

Crop[3] Year	Argentina	Brazil	Canada	China	Colombia	India	Indonesia	Japan	Rep. of Korea	Mexico	Romania	Paraguay	Thailand	United States	USSR	World Total
1981	4,150	12,835	607	9,325	99	467	514	212	257	680	268	600	131	54,135	450	86,020
1982	4,200	14,750	848	9,030	127	491	580	226	233	550	301	520	113	59,610	500	93,570
1983	7,000	15,540	735	9,760	85	614	625	217	226	600	259	550	179	44,518	560	83,160
1984	6,750	18,280	934	9,690		934	743	238	254	550	407	950	240	50,644	469	93,100
1985–6[3]	7,300	14,100	1,063	10,500		1,100	825	228	234	750	270	600	240	57,113	465	96,870
1986–7[1]	7,300	17,300		11,710								950		52,801		98,300
1987–8[1]	8,500	18,300		11,800								1,000		53,341		102,380

[1] Preliminary. [2] Projected. [3] Split year includes Northern Hemisphere crops harvested in the late months of the first year shown combined with Southern Hemisphere crops harvested in the early months of the following year. *Source: Foreign Agricultural Service, U.S.D.A.* T.627

U.S. Soybean Price Support Program & Official Crop Production Reports In Millions of Bushels

Year	Quantity Put Under Support	Deliveries to C.C.C.	Sept. 1 Stocks		National Avg. Support		(In Thousands of Bushels) Crop Production Reports					
			Total	Gov't. Owned	% of Parity	$ Per Bu.	August 1	September 1	October 1	November 1	December 1	Final
1974	34.6	—	170.8	—	37	2.25	1,314,232	1,315,792	1,262,352	1,243,912	1,233,425	1,216,287
1975	—	—	188.2	—	— None —		1,457,672	1,442,422	1,473,782	1,519,882	1,521,370	1,548,344
1976	22.5	—	244.9	—	34	2.50	1,344,343	1,274,263	1,249,713	1,252,148	1,287,560	1,288,608
1977	97.5	—	102.9	—	46	3.50	1,602,065	1,644,220	1,647,315	1,682,705	1,761,755	1,767,267
1978	64.2	—	161.0	—	51	4.50	1,765,024	1,772,364	1,792,064	1,810,389	1,870,181	1,868,754
1979	122.1	—	174.1	—	45	4.50	2,129,254	2,174,179	2,213,289	2,235,869	2,267,647	2,260,655
1980	133.2	—	358.5	.1	43	5.02	1,880,342	1,831,172	1,757,272	1,774,742	1,817,097	1,797,543
1981	221.5	—	313.0	.5	40	5.02	2,017,468	2,089,418	2,106,568	2,076,998	2,030,452	1,989,110
1982	396.6	—	254.5	20.9	39	5.02	2,293,420	2,313,880	2,300,345	2,299,520	2,276,976	2,190,297
1983	101.2	—	344.6	.7	39	5.02	1,843,459	1,534,969	1,517,019	1,536,519	1,595,437	1,635,772
1984	278.3	—	175.7	4.4	39	5.02	2,035,370	2,027,565	1,971,700	1,901,565	1,860,783	1,860,863
1985[1]	515.0		316.1		40	5.02	1,959,439	2,062,889	2,108,379	2,129,034	2,098,531	2,098,531
1986[1]			536.4			5.02	1,979,773	1,979,773	1,991,763	2,009,333	2,007,033	1,940,101
1987[1]			436.4			4.77	2,000,349	1,956,859	1,968,069	1,959,949		

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.*

T 628

Soybean Stocks in the United States In Thousands of Bushels

Year	On Farms				Off Farms				Total Stocks			
	Dec. 1[3]	Mar. 1[4]	June 1[2]	Sept. 1	Dec. 1[3]	Mar. 1[4]	June 1[2]	Sept. 1	Dec. 1[3]	Mar. 1[4]	June 1[2]	Sept. 1
1973	429,071	145,333	33,855	9,415	437,924	358,372	145,352	50,222	866,995	503,705	179,207	59,637
1974	608,160	331,885	151,104	64,545	552,756	405,943	190,865	106,337	1,160,916	737,828	341,969	170,882
1975	483,869	331,241	165,324	75,114	505,392	323,317	191,704	109,922	989,261	654,558	357,028	185,036
1976	590,466	411,366	253,963	86,150	665,689	456,283	300,938	158,781	1,256,155	867,649	554,901	244,931
1977	473,120	227,723	92,374	32,748	559,045	390,214	243,335	70,168	1,032,165	617,937	335,709	102,916
1978	672,861	393.684	207,102	59,000	652,400	455,448	298,815	102,044	1,325,261	849,132	505,917	161,044
1979	699,556	412,570	241,255	61,509	692,534	467,646	284,850	112,579	1,392,090	880,216	526,105	174,088
1980	890,091	600,648	396,040	128,596	877,896	580,322	378,144	229,880	1,767,987	1,180,970	774,184	358,476
1981	732,384	527,222	363,317	153,571	792,792	493,892	317,603	159,436	1,525,176	1,021,114	680,920	313,007
1982	882,826	565,792	354,097	117,749	727,478	460,128	292,268	136,732	1,610,304	1,025,920	646,365	254,481
1983	1,008,139	643,134	424,658	118,574	754,560	504,529	365,966	226,060	1,762,699	1,147,663	790,624	344,634
1984	620,171	374,237	179,601	67,912	670,384	415,765	292,085	107,784	1,290,555	790,002	471,686	175,696
1985	1,030,864	453,029	179,601	67,912	928,953	502,778	292,085	107,784	1,959,817	955,757	471,686	175,696
1986[1]	1,086,000	699,339	411,740	167,090	895,437	671,929	437,186	369,275	1,981,437	1,371,300	848,926	536,365
1987[1]	865,300	634,900	310,100	107,950	889,321	749,961	554,654	328,497	1.754,621	1,384,861	864,754	436,447

[1] Preliminary. [2] Data prior to 1976 are as of July 1. [3] Data prior to 1985 are as of Jan. 1. [4] Data prior to 1985 are as of April 1.
Source: Crop Reporting Board, U.S.D.A.

T 629

U.S. Commercial Stocks of Soybeans on the First of the Month In Millions of Bushels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1973	39.1	32.0	56.8	59.7	48.9	31.8	22.8	16.6	12.1	10.5	30.4	35.6
1974	33.6	32.0	35.3	36.2	27.3	21.2	21.2	20.3	18.0	14.3	51.6	55.4
1975	48.1	43.3	40.5	31.1	18.0	12.8	16.6	13.0	12.6	14.2	60.2	62.5
1976	52.0	55.7	57.1	51.7	42.5	37.0	32.5	30.4	21.3	27.9	54.4	52.2
1977	46.8	49.5	51.1	52.3	55.4	50.0	38.7	19.6	8.5	10.9	43.6	50.9
1978	46.2	44.3	41.8	49.1	47.9	42.7	30.6	23.0	10.7	13.0	58.3	63.2
1979	60.9	57.6	62.0	60.8	52.5	40.7	37.6	31.2	19.3	11.5	77.6	84.9
1980	76.5	71.5	73.2	72.3	56.5	52.6	53.2	51.8	44.8	51.5	80.6	79.5
1981	73.1	71.1	69.0	53.1	45.3	35.7	24.7	19.0	11.2	12.6	40.7	51.7
1982	50.6	50.4	41.1	39.9	34.7	67.4	21.5	18.4	11.5	12.8	43.9	53.5
1983	53.6	58.2	57.5	55.7	55.9	44.7	34.9	35.8	42.5	47.0	78.8	83.0
1984	77.2	74.4	65.2	58.6	49.2	41.1	35.4	20.8	7.9	6.7	23.3	41.7
1985	41.1	44.0	38.2	33.3	22.8	14.7	12.7	11.3	6.9	9.6	47.6	60.9
1986	61.7	63.9	57.3	53.6	40.2	30.5	24.9	24.5	24.8	30.1	52.5	61.5
1987				52.5	49.4	46.3	38.4	26.0	16.6	17.0	56.5	57.1

Source: Foreign Agricultural Service, U.S.D.A.

T 630

SOYBEANS

Salient Statistics of Soybeans in the United States

Crop Year	Planted Alone	Acreage Harvested	Yield Per Acre (Bus.)	Farm Price ($ Bu.)	Farm Value (Million Dollars)	Pounds Per Bushel Crushed		U.S. Exports of Soybeans Crop Year (Sept.-Aug.) (Ths. Metric Tons[2])								
	1,000 Acres					Yield of Oil	Yield of Meal	Grand Total	Bel.-Luxem	Spain	Canada	W. Germany	Japan	Netherlands	Taiwan	U.S.S.R.
1974–5	53,507	51,341	23.7	6.64	8,079	10.51	47.48	420.7	5.6		26.9	51.0	96.9	77.7	24.4	0
1975–6	54,550	53,617	28.9	4.92	7,622	10.94	47.27	555.1	17.7		28.0	45.6	118.1	130.5	32.8	11.4
1976–7	50,226	49,401	26.1	6.81	8,776	11.09	47.81	15,351	411	1,030	462	1,520	3,219	3,007	697	825
1977–8	58,760	57,830	30.6	5.88	10,383	10.39	47.34	19,061	475	1,532	264	1,521	3,636	4,086	854	744
1978–9	64,708	63,663	29.4	6.66	12,450	11.07	47.63	20,117	420	1,475	352	1,486	3,865	4,012	1,271	1.178
1979–0	71,632	70,343	32.1	6.28	14,204	10.74	48.01	23,818	584	2,203	392	1,318	3,868	6,035	780	813
1980–1	70,037	67,813	26.5	7.57	13,601	11.09	47.93	19,712	670	1,383	345	1,791	3,816	3,839	1,063	
1981–2	67,810	66,163	30.1	6.04	12,005	10.72	47.86	25,285	1,404	3,855	310	2,135	4,196	5,349	1,059	683
1982–3	70,884	69,442	31.5	5.65	12,463	10.76	47.88	24,634	1,259	2,313	324	1,813	4,580	4,648	1,300	199
1983–4	63,779	62,525	26.2	7.83	12,775	11.26	47.36	20,215	882	1,800	248	967	4,394	2,988	1,382	408
1984–5	67,755	66,113	28.1	5.84	10,748	11.05	47.15	16,279	658	1,084	140	718	3,828	2,857	1,389	0
1985–6[1]	63,130	61,584	34.1	5.05	10,597	11.01	47.27	20,158	784	1,519	114	934	4,293	3,056	1,506	1,519
1986–7[3]	61,480	58,292	33.3	4.80	9,312	10.86	47.08	20,600	888	1,775	205	1,393	4,024	3,540	1,968	71
1987–8[3]	58,685	57,559	34.1	5.00	9,840											

[1] Preliminary. [2] Data prior to 1976–7 are in millions of bushels. [3] Forecast. *Source: Crop Reporting Board, U.S.D.A.* T.631

Supply and Distribution of Soybeans in the United States In Millions of Bushels

Crop Year Begin Sept. 1	Supply					Distribution					
	Stocks, Sept. 1										
	Farms	Mills, Elevators[2]	Total	Production	Total Supply	Crushings	Exports	Seed	Feed	Residual	Total Distribution
1973–4	9.4	50.2	59.6	1,547.5	1,607.1	821.3	539.1	56.1	1.2	18.7	1,436.4
1974–5	64.5	106.3	170.9	1,216.3	1,387.2	701.3	420.7	57.2	1.0	21.7	1,198.9
1975–6	75.1	109.9	188.2	1,548.3	1,736.5	865.1	555.1	53.5	1.2	15.7	1,490.6
1976–7	86.2	158.8	244.9	1,288.6	1,533.5	790.2	564.1	61.0	1.0	13.3	1,429.6
1977–8	32.7	70.2	102.9	1,767.3	1,870.2	926.7	700.5	68.0	1.0	13.0	1,703.6
1978–9	59.0	102.0	161.0	1,868.8	2,029.8	1,018	739.0	75.0	1.0	23.0	1,856.0
1979–0	61.5	112.6	174.1	2,260.7	2,437	1,123	875.0	81			2,079
1980–1	128.6	229.9	358.5	1,797.5	2,156	1,020	724.0	99			1,843
1981–2	153.6	159.4	313.0	1,989.1	2,302	1,030	929.0	89			2,048
1982–3	117.7	136.7	254.5	2,190.3	2,444	1,108	905	86			2,099
1983–4	118.6	226.1	344.6	1,635.8	1,981	983	743	79			1,805
1984–5	67.9	107.8	175.7	1,860.9	2,037	1,030	598	93			1,721
1985–6	143.2	172.8	316.1	2,098.5	2,415	1,053	740	86			1,879
1986–7[1]	167.1	369.3	536.4	1,940.1	2,476	1,179	760	101			2,040
1987–8[3]	108.0	328.5	436.4	1,968.0	2,404	1,200	700	94			1,994

[1] Preliminary. [2] Also warehouses. [3] Estimates. *Source: Economic Research Service, U.S.D.A.* T.632

Production of Soybeans for Beans in the U.S., by Selected States In Millions of Bushels

Year	Ark.	So. Car.	Ill.	Ind.	Iowa	La.	Mich.	Minn.	Miss.	Mo.	N. Car.	Ohio	Tenn.	Nebr.	Ky.
1973	116.3	23.0	281.3	135.1	263.5	34.8	16.6	127.3	60.5	126.9	34.8	89.8	36.9	36.3	26.0
1974	81.7	24.0	202.6	97.3	199.1	44.0	13.2	84.0	46.3	93.5	30.5	79.8	31.9	28.2	25.0
1975	117.5	30.4	299.5	121.6	237.0	48.0	15.9	98.6	70.2	113.6	33.4	102.3	46.3	32.4	29.7
1976	82.1	21.4	249.5	111.5	200.0	63.0	11.6	66.4	71.5	84.0	24.6	95.0	40.5	19.6	28.9
1977	105.8	26.7	336.3	144.3	251.3	63.0	21.6	133.8	78.5	148.8	29.0	120.0	52.2	40.7	40.9
1978	115.2	32.3	309.5	144.2	283.1	76.0	21.6	146.2	81.7	155.0	40.3	127.7	56.9	42.5	40.8
1979	144.2	39.8	379.1	159.1	306.4	93.8	30.3	162.6	118.9	183.6	45.8	144.8	70.7	54.7	54.0
1980	65.3	20.8	309.9	157.7	318.4	67.0	30.4	149.9	61.6	135.5	34.7	135.4	45.9	53.1	36.0
1981	99.0	31.0	351.5	151.8	326.0	64.2	29.1	139.2	75.6	155.6	46.3	99.8	61.1	78.7	47.9
1982	105.6	39.6	354.2	173.3	306.6	75.4	35.3	169.1	92.3	171.0	52.5	133.2	61.0	78.8	51.3
1983	70.3	23.6	267.0	122.5	278.6	68.1	33.8	151.8	58.9	103.0	33.0	105.0	31.5	59.0	24.5
1984	101.4	29.8	284.1	150.1	264.6	66.8	32.1	172.9	76.8	108.7	46.5	137.6	48.1	66.3	42.3
1985	98.1	24.6	382.5	185.1	309.7	44.1	34.6	160.0	70.7	180.4	39.1	160.6	45.3	85.0	41.8
1986	66.0	13.7	360.0	157.3	350.7	35.0	28.8	162.8	41.7	170.6	36.7	146.6	35.5	93.1	35.8
1987[1]	77.1	15.8	323.8	174.0	346.2	38.2	38.2	188.0	49.0	156.8	31.2	159.1	30.0	87.0	28.6

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.633

Soybean Stocks at U.S. Mills on First of Month In Millions of Bushels

Crop Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1978–9	37.9	31.9	138.4	149.4	127.3	112.4	124.0	120.9	96.7	71.1	73.0	55.6
1979–0	37.5	39.2	166.5	184.5	163.3	145.4	130.7	118.6	95.8	79.7	75.7	73.9
1980–1	56.9	80.4	166.0	172.0	138.7	125.9	105.4	97.2	84.4	67.8	49.2	43.9
1981–2	33.4	31.5	105.8	135.2	114.5	99.8	84.6	79.2	72.2	60.8	51.2	43.6
1982–3	30.0	29.0	114.2	145.5	125.1	116.2	98.5	96.2	84.6	69.8	62.0	55.4
1983–4	58.6	63.9	124.5	142.3	124.0	125.3	114.8	105.3	94.2	101.7	83.4	57.7
1984–5	35.3	19.7	53.9	116.4	98.4	85.9	65.8	69.7	65.2	53.4	47.6	36.0
1985–6	26.7	25.7	92.8	113.4	119.9	124.6	97.5	84.9	67.6	53.2	40.7	40.2
1986–7	28.5	38.3	108.1	127.4	117.2	113.1	105.4	90.2	85.2	72.9	63.6	49.8
1987–8[1]	31.2	65.7	158.5									

[1] Preliminary. *Sources: Economic Research Service, U.S.D.A.* T.635

Soybean Exports from the United States In Millions of Bushels

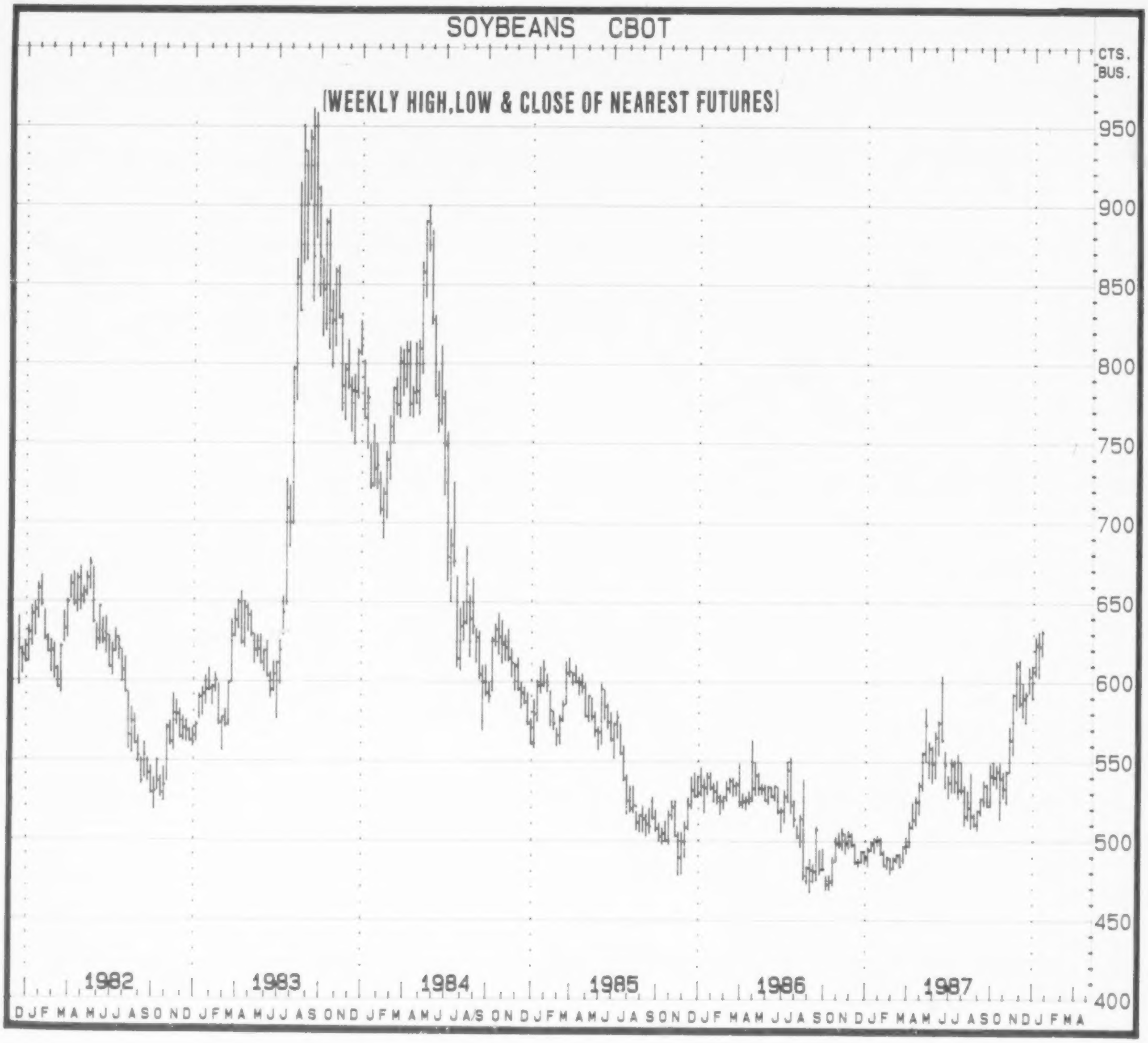
Year	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Total
1978–9	38.0	87.6	101.7	70.6	77.0	53.2	83.5	67.7	46.8	40.9	32.7	39.7	739.2
1979–0	40.9	88.9	118.1	78.3	85.8	73.0	69.4	81.3	74.2	58.7	49.1	57.7	875.2
1980–1	41.4	60.3	75.0	74.5	71.7	55.5	103.2	60.0	69.6	41.8	29.6	41.8	724.3
1981–2	50.9	100.8	103.7	73.6	84.3	89.4	79.0	85.7	90.6	59.8	53.8	57.5	929.1
1982–3	58.0	94.4	93.6	90.1	86.3	87.2	84.4	73.3	58.5	67.7	51.6	60.2	905.2
1983–4	53.9	67.6	69.2	74.5	80.4	79.7	78.8	68.5	56.8	41.1	39.2	30.7	686.6
1984–5	19.0	40.9	93.5	84.8	70.3	72.6	59.8	60.4	33.1	18.2	19.2	26.3	598.2
1985–6[1]	31.5	55.3	79.6	94.1	84.7	92.1	89.9	80.4	57.2	28.7	26.6	20.4	740.7
1986–7[1]	30.2	89.7	96.6	89.0	71.7	73.8	67.8	53.9	37.6	37.9	54.3	54.5	756.9

[1] Preliminary. *Source: Bureau of the Census* T.636

High, Low & Closing Prices of May Soybean Futures at the Chicago Board of Trade In Cents per Bushel

Year of Delivery		Year Prior to Delivery										Delivery Year					Life of Delivery Range
		Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
1981	High	741½	713½	710	750	859	855½	933	997½	1,006	1,001	882	798½	788½	812½	785	1,006
	Low	696½	681	684	680	744	783	842	847½	937	765½	735	754½	719½	757½	733	680
	Close	699	692	695¾	750	822	854½	873¼	966½	997½	843½	751½	761	783½	778½	741	—
1982	High	894	922	883	832½	853½	807	751	739	721	696¼	677	683	642	670¾	669½	922½
	Low	859	872	820	772	787	722	703½	705	670	619	637	617½	605½	639½	647	605
	Close	888½	873	829	788½	812½	730	715¼	714¼	678¼	641¼	674½	632¾	640	651¾	666	—
1983	High	713	729½	723½	704½	678½	664½	611½	588	607¾	595½	620	622	643¾	655½	643	746
	Low	667½	698	687½	670	651	593½	572½	558½	570½	576¼	577	572½	577½	620¼	610¼	558½
	Close	696	716½	687½	671	654¾	601	574¼	568¼	594	581¾	618½	575½	637	640¼	621½	—
1984	High	718	732	720	678	794	984	996	927	903½	853	825	768	815	813	894	996
	Low	645	695½	659	630	657½	760	859½	831	791	775½	738	706	762	765	768½	630
	Close	714	719	659½	660	761	930	890	851	822	843½	747½	765	789	771	888	—
1985	High	773	777	784	797	764	700	675	678	676½	640½	624	619½	614	609¾	590¾	797
	Low	753	737	744½	736	940	643½	601	623	623	597¼	581¾	572	570¾	585	568	568
	Close	768½	737	777	761	646½	675	627	659¾	634¼	599	613¼	573	605½	588	568	—
1986	High	645	650	637	616	618	560½	560½	551½	557	567	566½	545	548	563	549	650
	Low	608½	631	583½	577	547	531¼	532	534¼	549	504	537	523¼	527¼	519½	527	504
	Close	643½	636½	590½	583	555¼	541	547½	548¾	513	554	542½	529¾	541½	544	534½	—
1987	High	554	574	574	536	541½	529½	513¾	514	512	511¼	502¼	500¾	498	536	584	584
	Low	535½	522	529½	509½	504½	492	491¾	493¼	501	489	489	478½	482½	496½	531¼	478½
	Close	544¾	564½	529½	510	525	502	508½	509	510½	498¼	498¾	483	496½	534½	549½	—
1988	High	505½	554	634	650	577	539	554¼	576	626½	629½						
	Low	488	509	549½	566	532	509	520½	540½	538½	592¼						
	Close	504	554	579	575	547½	521¾	550½	549½	618½	622						

Source: Chicago Board of Trade T.634



Month–End Open Interest of Soybean Futures at Chicago Board of Trade In Millions of Bushels

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1978	470.3	438.0	499.4	483.9	553.5	491.8	452.8	485.8	562.2	726.6	720.1	775.1
1979	613.9	719.0	642.0	576.1	562.2	584.4	514.4	477.1	534.9	564.7	630.4	704.3
1980	533.2	540.0	502.2	449.6	513.5	615.0	703.5	784.4	880.4	1,069.6	1,102.7	1,056.4
1981	645.7	586.9	565.0	551.4	523.3	513.6	470.3	455.7	449.1	523.2	491.4	426.6
1982	400.8	391.6	435.2	422.1	399.1	377.0	400.2	353.7	357.7	422.9	433.3	424.7
1983	465.3	413.9	485.7	507.5	428.5	401.2	547.5	714.3	745.7	684.1	648.2	603.2
1984	548.3	548.9	556.2	494.5	577.1	428.7	316.2	275.1	287.0	339.4	351.2	343.2
1985	359.5	359.2	327.9	311.9	320.2	321.5	329.9	331.6	307.9	390.1	370.5	386.4
1986	373.3	376.5	385.4	371.7	328.7	323.2	287.7	296.3	309.7	426.5	408.7	392.2
1987	383.7	363.7	414.2	445.5	452.1	432.4	368.0	354.9	426.4	485.8	621.1	550.4

Source: Chicago Board of Trade

T.642

Volume of Trading in Soybean Futures at the Chicago Board of Trade In Millions of Bushels

Year	Jan	Feb.	Mar.	Apr.	May	June	July	Aug	Sept	Oct.	Nov.	Dec	Total
1979	3,701	5,038	4,123	3,856	3,686	5,485	4,184	2,843	2,920	3,946	3,115	2,674	45,572
1980	3,222	2,916	2,808	3,035	2,911	3,602	6,803	5,226	6,562	7,706	7,025	7,024	58,841
1981	5,808	4,074	4,796	4,585	3,917	4,737	4,821	3,897	3,626	4,087	3,765	4,337	52,450
1982	3,120	3,497	4,478	4,484	3,517	4,245	4,017	3,822	3,197	4,014	4,282	3,198	45,828
1983	3,942	3,820	4,247	4,375	4,259	4,409	6,224	8,799	7,852	8,071	6,793	5,609	68,402
1984	5,550	5,247	6,008	4,945	7,300	6,323	5,314	4,045	2,505	3,687	3,427	2,463	56,813
1985	3,315	2,749	2,657	2,821	2,766	3,309	3,779	2,581	2,525	3,364	3,881	3,213	36,961
1986	3,692	2,484	2,435	2,976	2,546	2,199	2,925	2,049	1,812	3,266	2,473	1,811	30,668
1987	2,174	1,816	1,794	3,118	3,969	4,356	3,785	1,935	2,305	4,109	3,674	3,859	36,894

Source: Commodity Futures Trading Commission T.638

Soybeans Under Price Support Through the End of the Month (Cumulative Total from Current Season's Crop) In Thousands of Bushels

Year	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
1978–9	0	6,403	31,008	43,015	58,278	61,489	62,365	63,146	63,508	65,087	—	—
1979–0	11	9,507	39,559	67,372	101,052	106,135	113,638	119,860	121,684	122,013	—	—
1980–1	22	11,705	28,541	67,744	100,809	116,167	125,480	130,236	132,346	133,160	—	—
1981–2	1,044	26,019	81,377	138,202	191,386	208,285	216,412	219,743	144,165	221,303		
1982–3	861	50,145	203,031	311,105	363,696	382,536	391,432	393,567	394,727	395,893		
1983–4	0	9,098	32,869	62,736	84,526	92,974	98,945	100,030	100,656	100,817		
1984–5	0	46,349	99,437	174,002	242,526	258,174	268,812	271,353	274,051	275,687		
1985–6	1,056	86,633	265,929	408,793	482,688	499,223	506,818	511,462	513,089	513,954	—	—
1986–7	313	34,971	154,207	240,072	299,[illegible]18	316,598	321,327	327,233	329,094	329,766	329,971	—
1987–8	4,382											

Source: U.S. Department of Agriculture T.639

Soybeans Crushed (Factory Consumption) in the U.S. In Millions of Bushels—One Bushel = 60 Pounds

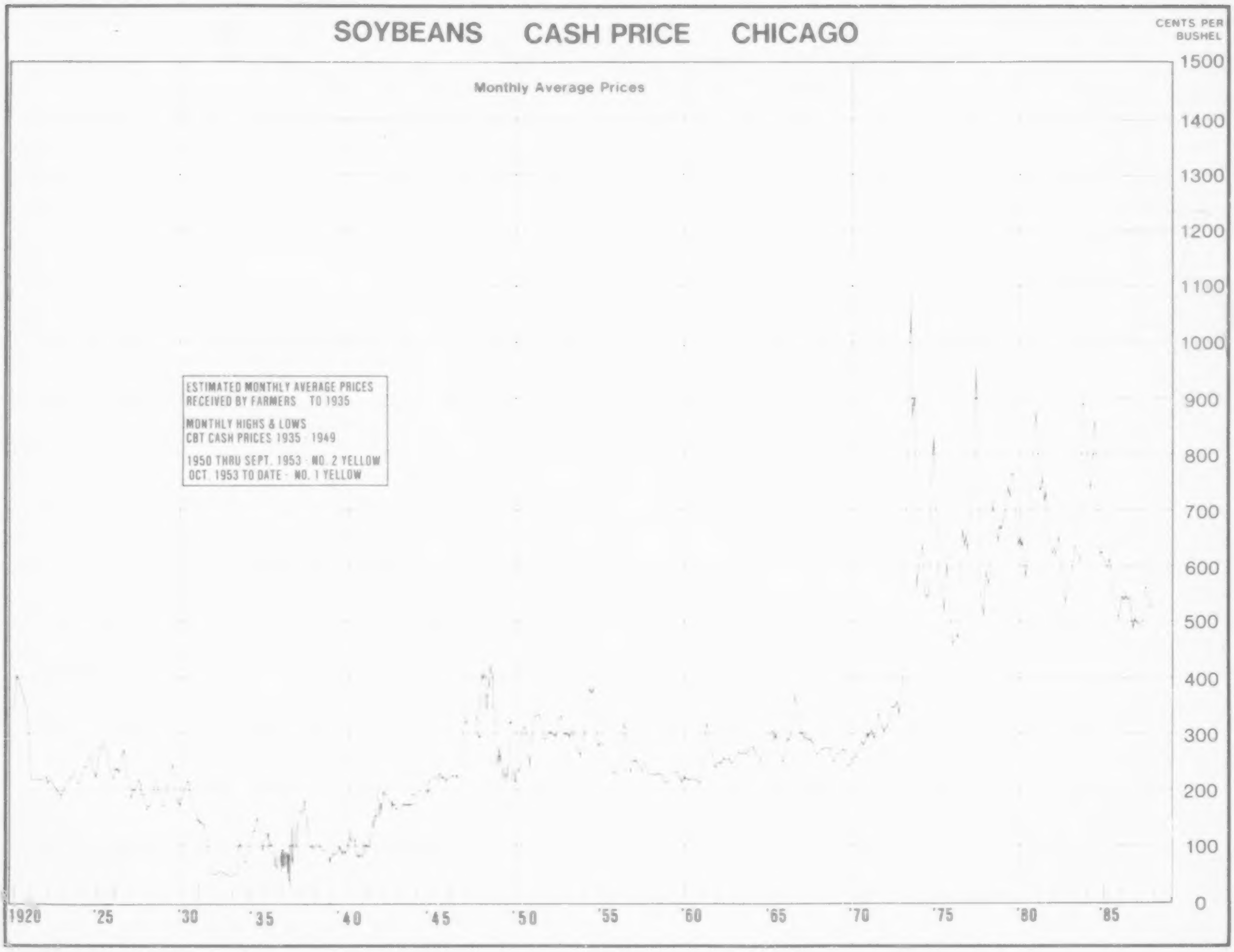
Year	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Total
1978–9	71.4	89.3	89.6	96.4	90.6	81.5	89.0	83.3	86.9	82.8	80.6	76.4	1,018
1979–0	75.9	95.8	101.4	104.4	106.6	100.0	102.2	92.0	93.8	82.7	84.9	83.7	1,123
1980–1	81.0	97.8	98.5	94.1	92.2	79.6	88.7	85.4	82.3	73.4	72.3	74.6	1,020
1981–2	75.4	104.5	97.6	102.5	94.9	86.7	85.1	81.0	86.6	77.1	70.6	67.8	1,030
1982–3	76.0	100.2	108.1	111.9	110.0	93.0	94.6	81.8	83.7	81.5	81.6	85.7	1,108
1983–4	86.6	96.4	86.6	89.4	93.8	79.2	86.0	74.6	79.4	70.6	69.0	71.1	982.7
1984–5	65.5	89.2	98.9	101.1	94.5	80.8	85.6	83.2	89.3	82.7	82.0	77.5	1,030
1985–6	76.5	94.3	96.7	100.8	99.6	81.4	91.6	84.4	86.3	79.6	83.1	78.4	1,053
1986–7[1]	79.4	107.0	109.4	107.6	110.3	102.3	106.0	95.9	95.3	90.6	92.6	82.4	1,179
1987–8[1]	79.7	102.5											

[1] Preliminary. *Source: Bureau of the Census* T.641

Average Price Received by Farmers for Soybeans in the U.S. In Cents Per Bushel

Year	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Average
1978–79	620	626	641	649	658	699	716	706	706	736	736	707	666
1979–80	681	635	630	627	639	620	594	563	576	591	675	718	628
1980–81	759	768	818	780	780	750	759	760	740	705	713	671	757
1981–82	621	606	603	600	613	604	604	617	627	612	599	559	604
1982–83	522	506	534	546	556	566	582	609	606	590	627	757	565
1983–84	828	796	780	774	785	728	768	783	812	799	695	650	781
1984–5	609	608	602	582	591	577	588	588	570	562	542	510	585
1985–6	499	485	492	500	516	518	523	523	525	519	511	499	
1986–7	485	455	464	467	469	469	473	490	520	536	525	502	
1987–8	499	504	536	557									

Source: Crop Reporting Board T.637



Average Cash Price of No. 1 Yellow Soybeans at Illinois Processor In Cents per Bushel

Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Average
1976–7	622	655	686	706	726	825	960	942	825	640	549	516	721
1977–8	507	584	594	573	565	658	681	701	676	662	647	642	624
1978–9	672	668	681	689	728	745	727	721	768	764	728	704	716
1979–0	656	652	653	636	642	607	580	604	610	722	745	813	660
1980–1	827	891	773	757	734	737	772	758	713	736	694	644	753
1981–2	630	628	623	630	624	616	642	656	631	620	573	540	618
1982–3	526	570	573	581	586	598	635	627	606	659	846	893	640
1983–4	846	820	777	767	737	797	798	861	791	685	663	621	764
1984–5	627	625	607	604	597	608	613	595	588	565	528	519	598
1985–6	505	519	532	545	538	547	540	544	543	533	500	496	529
1986–7	489	508	496	498	489	492	512	552	563	547	528	527	517
1987–8	532	564											

Source: Agricultural Marketing Service, U.S.D.A. T.643

Stock Index Futures

On August 25, 1987, the Dow closed at its all-time high of 2722.42, up 41 percent from its January 2 close of 1927.31, a level where many value investors said there was nothing to buy. Nevertheless, underinvested money managers, fearful of their performance ratings, kept adding to their positions.

Bulls said the weak dollar would boost profits for U.S. multinationals, more productivity would come from leaner companies, mergers had reduced the supply of stocks, and Japanese buying would continue. P/E's in Japan were over 70, making the Dow look cheap. Forecasts of 3600 for the Dow were taken seriously.

On August 27, the Dow's P/E was 20.9, and its yield was 2.59%; the S&P 500 had a 23.19 P/E and a yield of 2.64%. This resembled the 1973 era of the "Nifty Fifty" one-decision stocks, when institutions all bought the same stocks and salted them away. Interest rates were rising, mirrored by the Dow Utilities Index, which peaked in January at 227.83 and then trended lower with bond prices. At the top, the spread between the AAA bond yield and the Dow's yield was 6.68 percentage points, about as wide as it had ever been and a sign of trouble.

The Dow Jones Composite Index of 65 stocks also peaked on August 25 at 922.21; the Dow Transportation Index peaked at 1101.76 on August 14. Volume and volatility were at once-unthinkable levels. Records for largest daily gains, losses, and trading ranges were set and reset. The stage was set for Black Monday, October 19, when the Dow closed down 508 points at 1738.74, the transports lost 164.80 to 776.87, and the utilities fell 29.16 to 160.98.

The next day had the heaviest volume, 608 million shares, in New York Stock Exchange history, and the Dow gained 102.27 points. On October 21, the Dow closed up 186.54 points, its all-time, one-day gain. The market bottomed around December 4, with the 65 stocks at a 1987 low of 653.76. In the week ended December 11, the Dow Industrials posted its first weekly gain of more than 100 points, which was topped by the following week's gain of 108.26 points.

Futures and Options Markets

The Chicago Mercantile Exchange (CME) has S&P 500 futures and options on that contract, while the Chicago Board Options Exchange (CBOE) trades options on the index itself and on the S&P 100 Index. The New York Stock Exchange (NYSE) Index trades on the New York Futures Exchange (NYFE), with options on NYSE futures and on the NYSE Index. On the CME, Major Market Index (MMI) futures are traded. MMI options are on the American Stock Exchange (AMEX), along with options on its Institutional Index and Computer Technology Index.

Value Line Index futures are on the Kansas City Board of Trade (KBOT). Value Line options are on the Philadelphia Stock Exchange (PHLX), along with options on the National O-T-C Index and the Utilities Index.

The Financial Times Index is traded on the London International Financial Futures Exchange (LIFFE). The Nikkei Stock Average of Tokyo securities is traded on the Singapore Monetary Exchange (SIMEX), and Toronto Stock Exchange 300 Composite Index futures are traded on the Toronto Futures Exchange (TFE).

Month–End Open Interest of NYSE Composite Stock Index Futures at New York in Contracts

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1984	9,348	9,874	8,571	8,454	9,376	7,957	7,918	10,968	9,710	9,181	7,745	7,149
1985	11,062	10,884	9,804	9,438	13,672	9,677	12,102	10,388	7,218	7,011	8,131	9,381
1986	10,164	13,992	15,320	13,809	15,902	10,503	11,662	11,883	21,880	18,816	20,740	9,306
1987	11,893	13,228	13,007	14,682	11,000	9,115	13,059	18,768	12,819	9,431	8,887	5,106

Source: New York Futures Exchange T.643E

Month–End Open Interest of KC Value Line Stock Index Futures at Kansas City in Contracts

Year	Jan	Feb	Mar	Apr	May	June	July	Aug.	Sept	Oct	Nov.	Dec.
1984	4,019	5,032	3,241	3,235	3,669	3,041	3,811	5,305	3,000	4,195	5,244	3,888
1985	7,563	7,332	5,741	6,197	8,634	6,556	11,707	10,695	7,576	7,765	11,926	16,844
1986	16,536	19,310	15,129	15,568	14,607	8,603	7,941	7,442	6,478	6,625	6,543	8,735
1987	10,822	11,323	7,118	7,133	6,461	4,645	5,320	5,596	3,447	3,701	2,851	1,524

Source: Kansas City Board of Trade T.643F

Month–End Open Interest of Maxi[1] Major Market Stock Index Futures at Chicago (CBT) in Contracts

Year	Jan.	Feb	Mar.	Apr.	May	June	July	Aug.	Sept	Oct.	Nov	Dec.
1984	Futures trading began July 23, 1984						5,423	5,846	7,610	11,594	14,211	13,515
1985	17,427	12,779	14,688	14,577	9,328	5,660	9,247	3,884	5,000	3,923	7,169[1]	3,453
1986	4,350	5,973	7,760	5,028	7,290	8,765	8,407	7,524	8,351	7,558	7,268	4,713
1987	7,389	6,671	6,137	12,882	5,614	6,029	8,579	12,079	8,866	4,244	3,074	2,233

[1] Data prior to Nov. 1985 are for the major market index. (Not the maxi.) *Source: Chicago Board of Trade* T.643H

STOCK INDEX FUTURES

High, Low & Closing Prices of the December S&P 500 Stock Index Futures at Chicago IMM

Year of Delivery		Yr. Prior to Del.	Delivery Year												Life of Delivery Range
		Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1984	High	175.00	177.30	171.50	166.75	166.20	167.70	160.55	158.90	173.95	174.60	174.40	172.90	169.50	179.20
	Low	169.95	170.65	158.60	154.60	159.70	153.90	153.95	150.70	155.40	166.30	162.75	163.90	161.55	150.70
	Close	173.85	171.00	162.50	165.35	166.00	155.60	157.35	154.90	170.20	170.10	168.60	164.55	165.51	—
1985	High	181.05	191.25	194.90	196.50	191.90	198.00	199.10	200.85	195.75	191.40	190.45	204.50	213.85	213.85
	Low	178.40	175.40	188.75	187.00	186.20	185.35	191.55	192.20	188.75	180.65	182.10	189.10	200.40	175.40
	Close	178.40	189.75	193.55	190.20	187.20	186.40	196.65	193.85	189.90	182.80	189.25	202.40	210.90	—
1986	High	220.90	223.30	237.20	249.50	252.10	254.80	255.30	257.25	256.85	256.40	244.80	249.95	256.05	257.25
	Low	215.70	209.50	218.00	230.20	232.40	235.60	241.20	234.40	232.95	226.10	229.80	235.20	244.75	209.50
	Close	219.30	220.50	234.90	247.30	239.55	252.20	254.25	237.55	254.35	230.60	244.70	248.65	249.60	—
1987	High	251.40	286.50	293.00	309.20	310.00	305.30	315.90	322.90	342.35	336.20	333.00	258.20	248.90	342.35
	Low	243.20	248.10	278.00	287.10	278.50	281.70	291.50	306.30	317.30	311.30	181.00	225.00	220.80	181.00
	Close	244.55	277.80	287.75	294.95	293.10	293.75	305.95	322.80	333.80	325.85	259.35	232.00	243.15	—

Source: Chicago Mercantile Exchange, International Monetary Market. T 643B

High, Low & Closing Prices of the December NYSE Composite Stock Index Futures at N.Y. Futures Exch.

Year of Delivery		Yr. Prior to Delivery		Delivery Year												Life of Delivery Range
		Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1984	High	102.25	101.15	102.65	99.30	95.90	95.45	96.20	92.55	91.50	100.40	100.85	100.90	9.85	97.90	103.55
	Low	98.25	98.50	98.70	91.00	91.90	91.80	88.55	88.80	86.70	89.35	95.85	93.80	94.45	93.20	86.70
	Close	100.95	99.85	99.00	93.90	95.15	95.35	89.55	90.70	89.00	98.30	98.05	97.40	94.90	95.56	—
1985	High	—	104.15	110.90	112.95	113.75	111.55	115.15	115.50	117.20	115.45	111.05	110.05	117.95	123.25	123.25
	Low	—	103.20	101.20	109.60	108.55	108.05	107.60	111.80	111.55	109.60	104.45	105.15	109.20	115.65	101.20
	Close	—	103.55	110.25	112.25	110.85	108.70	114.30	114.40	112.55	110.20	105.70	109.35	116.75	121.30	—
1986	High	—	127.05	129.10	136.30	144.20	145.35	146.55	146.70	148.00	147.65	146.65	141.05	143.30	146.50	148.00
	Low	—	124.85	121.00	126.90	133.55	134.60	135.60	139.00	133.90	133.90	128.00	131.80	135.15	139.90	121.00
	Close	—	126.45	127.15	134.90	142.60	138.15	144.70	145.95	136.55	145.95	132.60	140.95	142.35	142.65	—
1987	High	—	144.50	163.00	166.50	175.25	175.45	171.45	177.15	181.20	191.45	188.15	186.35	144.70	140.00	191.45
	Low	—	139.70	143.00	158.25	164.00	157.75	159.00	164.10	172.25	178.25	174.45	103.00	126.35	124.10	103.00
	Close	—	139.70	158.80	163.95	167.60	165.35	164.80	172.25	181.05	186.80	182.65	144.35	130.40	139.20	—
1988	High	—														
	Low	—														
	Close	—														

Source: New York Futures Exchange. T 643C

High, Low & Closing Prices of the December Value Line Stock Index Futures at K.C. Board of Trade

Year of Delivery		Yr. Prior to Delivery		Delivery Year												Life of Delivery Range
		Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1984	High	—	—	210.80	200.60	191.95	188.20	189.00	180.35	177.70	191.50	193.40	191.70	188.15	180.95	210.80
	Low	—	—	201.00	184.00	185.60	181.35	173.00	174.60	164.45	170.00	183.50	179.05	175.60	172.65	164.45
	Close	—	—	201.00	187.60	188.85	186.25	175.15	177.30	169.40	188.75	187.60	183.75	175.90	177.98	—
1985	High	—	—	—	211.55	215.45	209.15	213.00	210.50	217.05	209.80	202.60	196.00	209.70	216.65	216.65
	Low	—	—	—	209.50	204.70	201.80	200.30	202.00	205.20	200.80	188.80	188.60	194.60	205.30	188.60
	Close	—	—	—	211.40	207.30	201.80	209.10	207.70	206.95	202.20	190.20	194.85	207.55	213.70	—
1986	High	—	226.25	228.35	235.30	250.00	251.90	251.60	247.65	250.10	237.60	240.00	231.00	233.60	235.60	251.90
	Low	—	219.00	217.50	224.20	235.20	236.00	237.00	240.70	221.30	218.70	210.80	215.50	220.90	226.50	210.80
	Close	—	222.00	223.65	235.30	246.90	240.30	248.00	245.80	222.45	235.15	218.80	230.65	230.00	231.00	—
1987	High	—	—	242.50	258.60	272.40	272.10	263.70	270.70	278.70	288.50	285.60	281.70	207.25	202.10	288.50
	Low	—	—	240.00	246.70	258.15	245.80	246.00	255.10	264.30	274.30	266.00	170.00	182.50	179.20	170.00
	Close	—	—	241.85	258.10	261.80	255.90	255.30	263.70	278.00	283.65	278.15	198.00	188.25	201.95	—

Source: Kansas City Board of Trade. T 643A

High, Low & Closing Prices of the September Major Market Maxi[1] Stock Index Futures at Chicago BOT

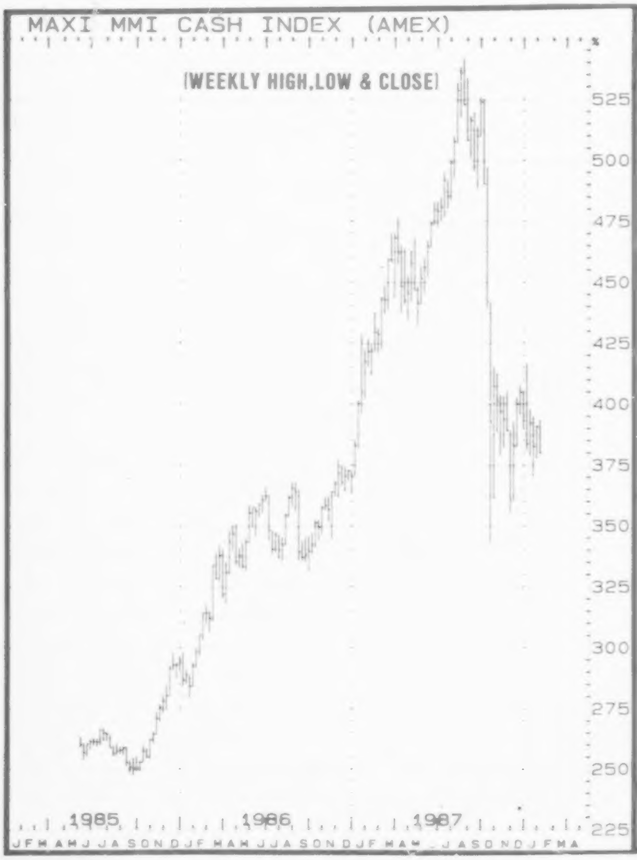
Year of Delivery		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Life of Delivery Range
		Delivery Year									
1985	High	—	—	264⅞	264	265	266⅝	267½	265½	259	267½
	Low	—	—	259	255¼	251⅝	257¾	261¼	255½	248⅞	248⅞
	Close	—	—	262¼	256¼	264¼	263¼	264¼	256¾	250½	—
1986[1]	High	287.00	299.00	272.60	353.50	362.10	365.70	366.90	368.80	368.00	368.80
	Low	272.60	272.60	272.60	272.60	333.90	348.60	336.00	336.00	335.00	272.60
	Close	272.60	272.60	272.60	340.70	357.40	363.65	342.75	364.20	336.65	—
1987	High	—	—	—	477.50	472.00	486.60	500.60	543.30	535.50	543.30
	Low	—	—	—	439.00	436.50	450.00	476.30	494.30	495.70	436.50
	Close	—	—	—	452.00	453.60	476.90	499.75	530.40	497.18	—

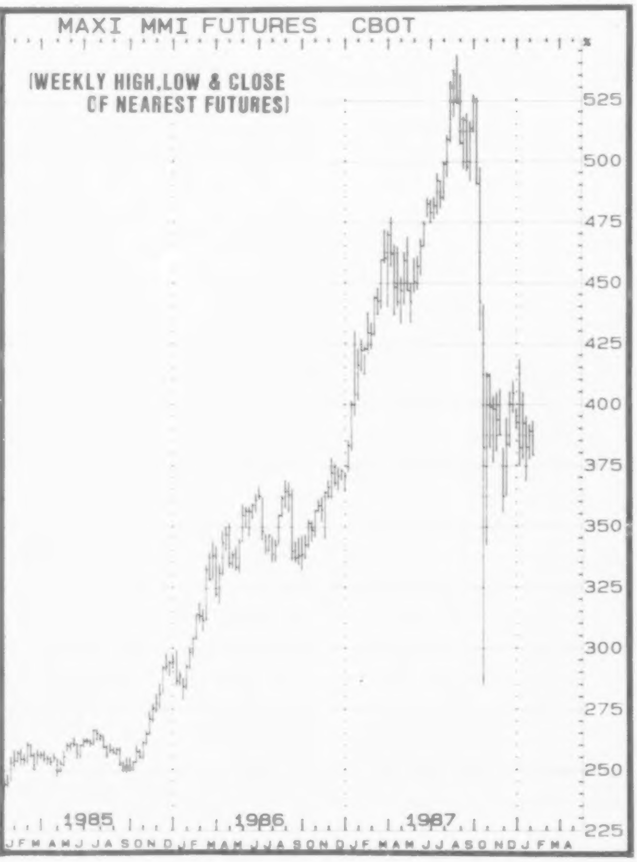
[1] Prices prior to Jan. 1986 are for the major market stock index. *Source: Chicago Board of Trade* T.643G

Month-End Open Interest of S&P 500 Stock Index Futures at Chicago IMM in Contracts

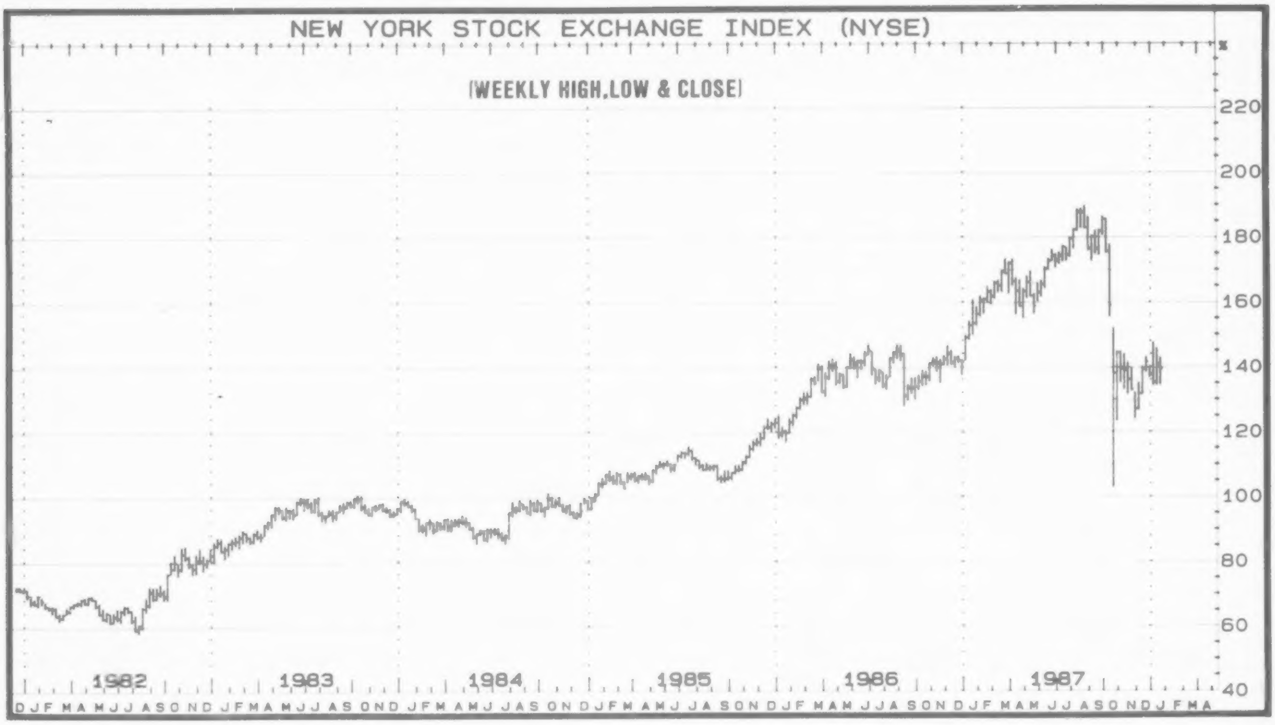
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1982	—	—	--	1,613	6,780	9,603	15,482	13,840	12,901	12,625	16,601	11,681
1983	15,748	22,841	17,766	25,556	30,796	25,013	28,616	29,747	24,129	29,329	27,967	25,349
1984	34,012	38,441	27,931	33,389	34,200	28,395	33,971	31,973	31,610	46,104	53,530	42,191
1985	58,332	62,142	57,664	58,131	72,642	58,890	60,612	60,718	53,629	65,568	74,909	62,879
1986	63,660	86,224	78,431	73,268	99,371	83,100	112,015	107,016	125,304	138,262	144,347	95,433
1987	107,929	123,021	97,673	121,860	128,356	109,452	115,389	129,539	114,182	152,340	139,887	107,973

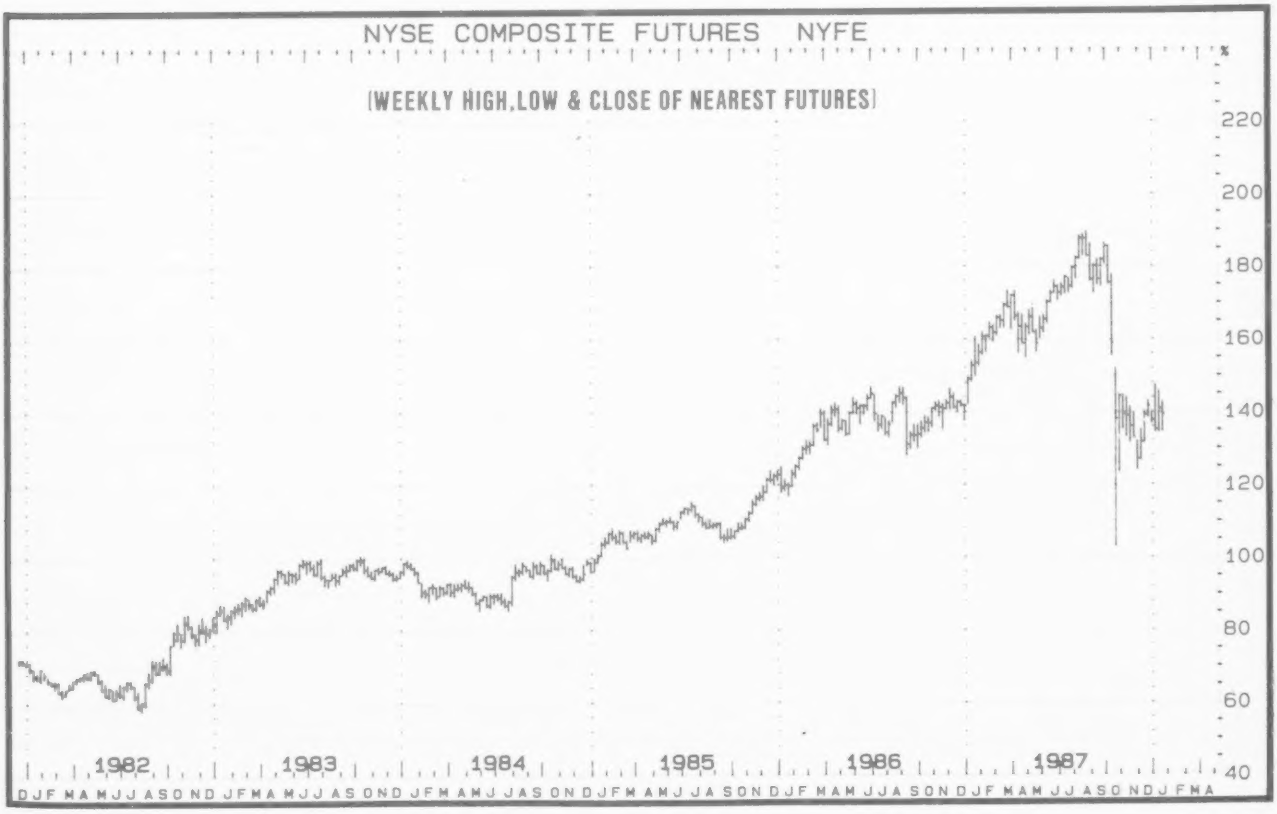
Source: International Monetary Market (Chicago) T.643D

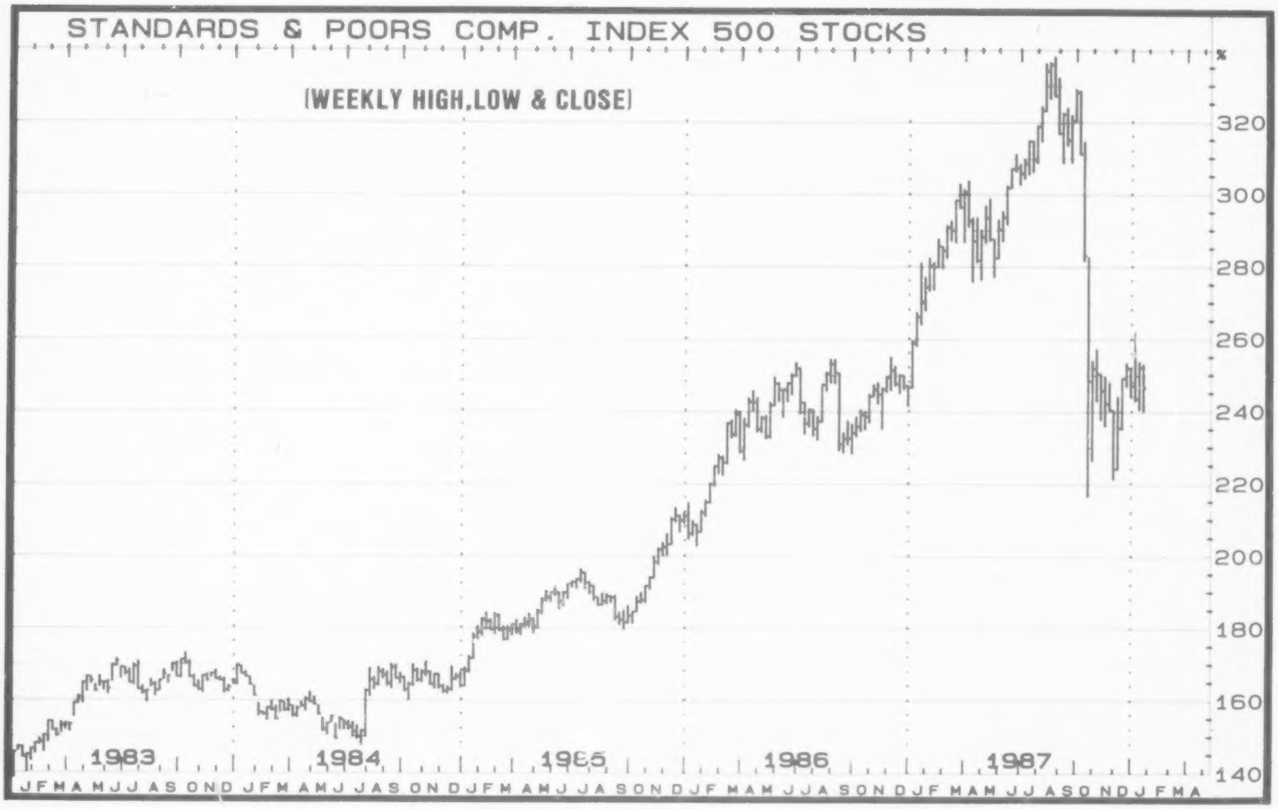


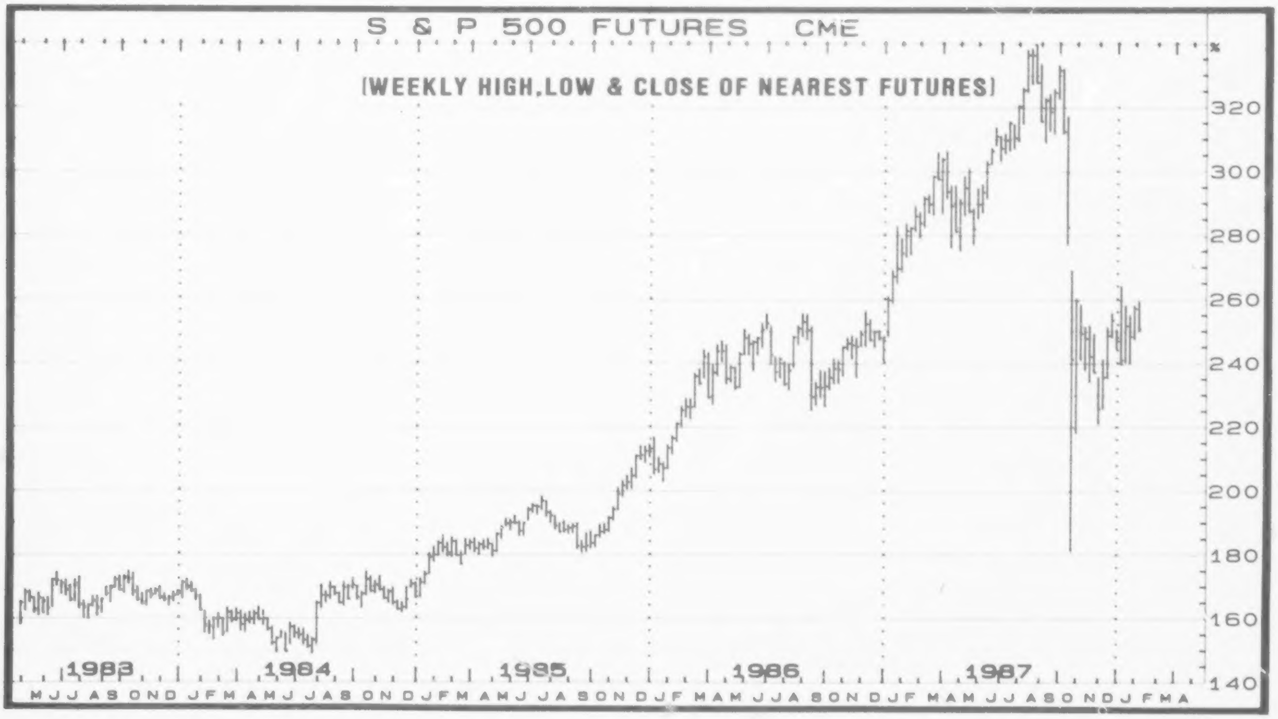


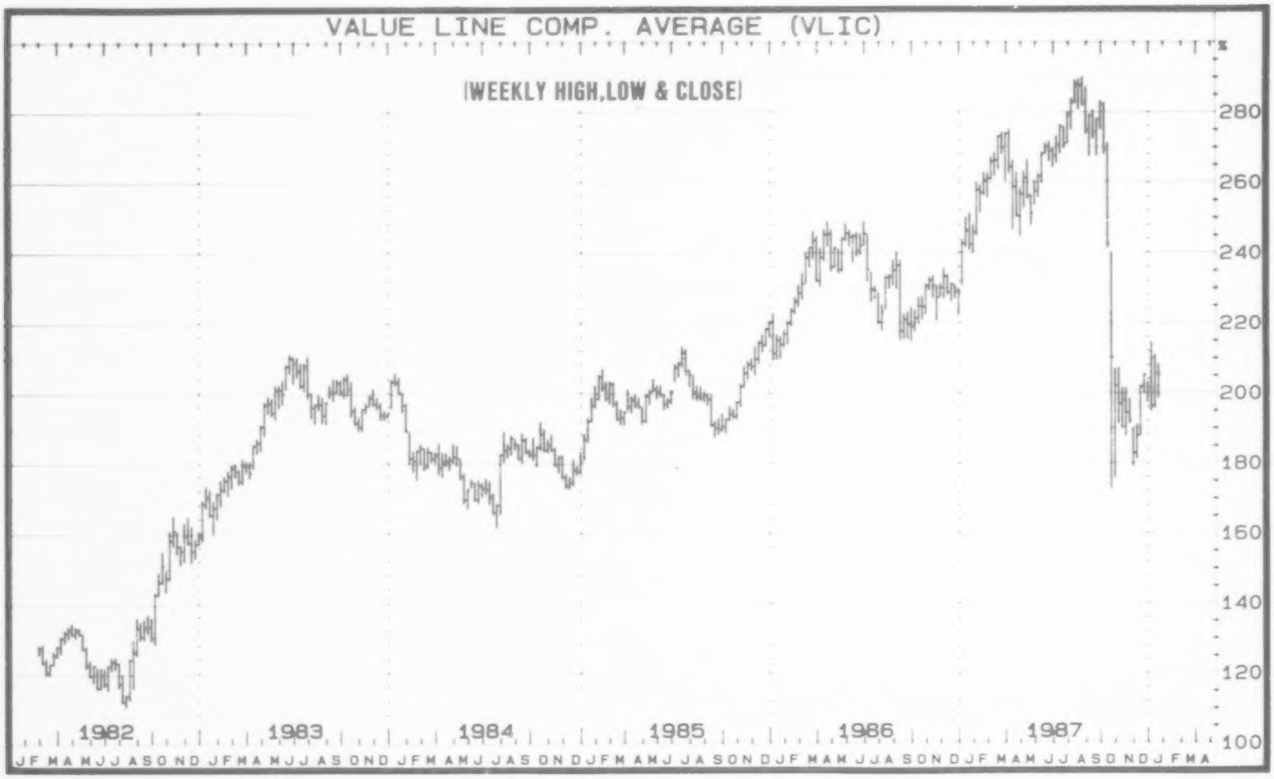
STOCK INDEX FUTURES

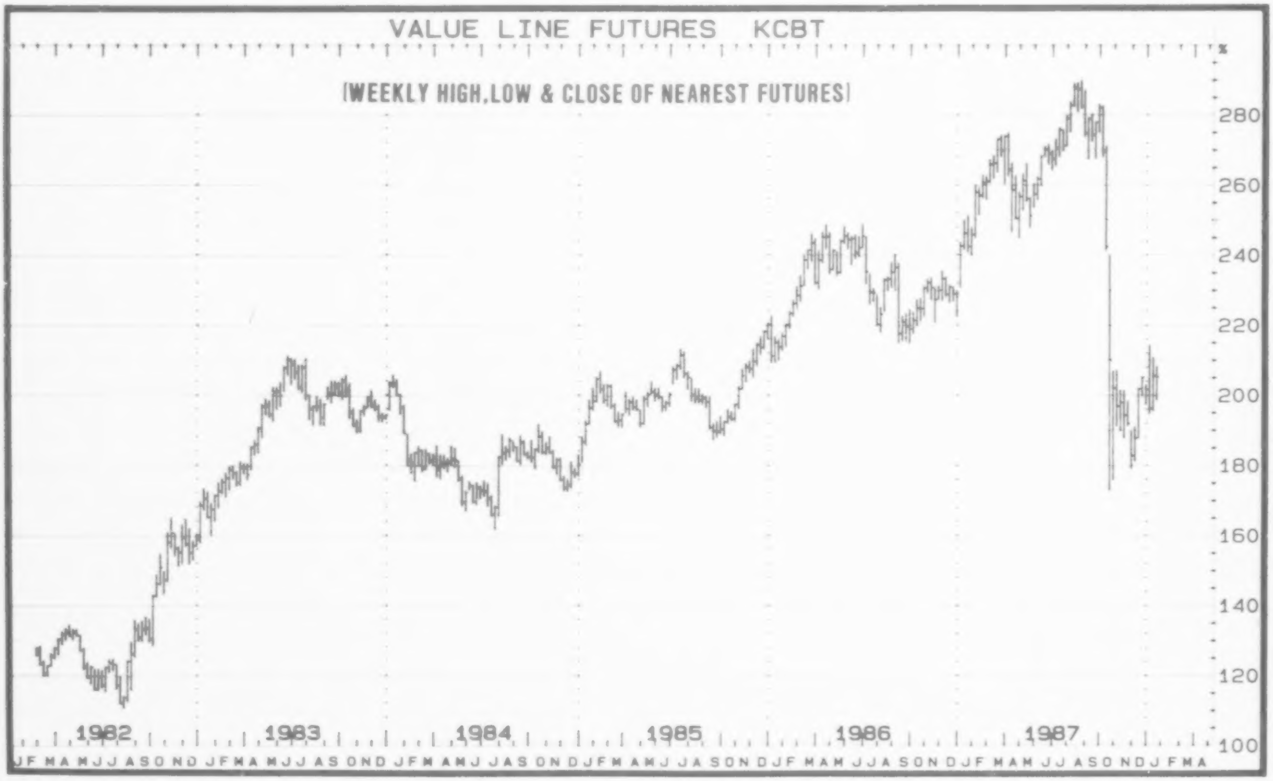





STANDARDS & POORS COMP. INDEX 500 STOCKS
(WEEKLY HIGH,LOW & CLOSE)
320
300
280
260
240
220
200
180
160
140
1983
1984
1985
1986
1987
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A


S & P 500 FUTURES CME
(WEEKLY HIGH,LOW & CLOSE OF NEAREST FUTURES)
320
300
280
260
240
220
200
180
160
140
1983
1984
1985
1986
1987
M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A


VALUE LINE COMP. AVERAGE (VLIC)
(WEEKLY HIGH,LOW & CLOSE)
280
260
240
220
200
180
160
140
120
100
1982
1983
1984
1985
1986
1987
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A


VALUE LINE FUTURES KCBT
(WEEKLY HIGH,LOW & CLOSE OF NEAREST FUTURES)
280
260
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220
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180
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120
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1982
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1985
1986
1987
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A

Sugar

World centrifugal sugar production in 1987/88 was estimated at 104.1 million tonnes, raw value, up about 220,000 tonnes from 1986/87. Declines in cane sugar production, which accounts for about two-thirds of the world's output, were more than offset by a rise in beet sugar. Total sugar production was expected to lag consumption by 1 to 2 million tonnes, putting global ending stocks in August 1988 at 33.6 million tonnes (versus 35.5 million a year earlier). Carryover stocks as a percentage of consumption were forecast at 32 percent, considerably below ratios that exceeded 40 percent during most of the 1980s.

Typically, the key indicator of world prices is the stocks-to-consumption ratio. Projections that the season will end with a lower ratio tend to enhance the price outlook, especially if world prices are under 10 cents/lb. This suggested world prices would be higher in 1988 than in 1987.

Total 1987/88 European beet sugar production was pegged at 31.8 million tonnes, down about 2 million from 1986/87, with adverse harvesting weather. The USSR's production was placed at 9.7 million tonnes, versus 8.7 million in 1986/87. EC output was forecast at 14 million tonnes, versus 15 million the season before. In some cane-producing areas, notably India, drought lowered yields and output. India's crop was forecast at 9.1 million tonnes, down from 9.2 million the previous year. The Cuban crop was placed at 7.3 million tonnes, versus 7.2 million in 1986/87.

World demand was expected to continue rising in 1987/88, possibly topping 105 million tonnes. In the early 1980s, consumption was around 90 million tonnes. The increase has come largely from developing countries. Africa's consumption was put at 8.8 million tonnes in 1987/88, versus 8.6 million the previous season, with central Africa accounting for most of the rise. Asian use was about 33.2 million tonnes, up at least 1 million from the previous year. Half of the gain was expected to come from China and India.

U.S. 1987/88 sugar production was expected by USDA to exceed 7 million short tons, raw value. This was slightly higher than the record 6.7 million tons in 1975/76, and 16 percent above average output of 6.01 million in 1982/83-1986/87. Beet sugar output was estimated at 3.6 million tons, up 5 percent from 1986/87 and the third largest ever. Cane sugar production was placed at 3.4 million tons, up almost 4 percent from the previous season's record.

Beet sugar output in Michigan-Ohio and the Red River and Minnesota River Valleys of Minnesota and North Dakota was about 1.5 million tons, raw value, in 1987/88, up from 1.4 million in 1986/87. Sucrose recovery in those non-irrigated areas averaged nearly 13 percent, and production accounted for 40 percent of U.S. beet sugar output. Production in the irrigated areas--the Great Plains, the Northwest, and California--was put at just over 2.1 million tons, up from around 2 million a year earlier. Sucrose recovery in those areas was expected to average 14 percent.

In 1987/88, the U.S. sugar cane area for harvest--for processing into sugar and for seed cane--was estimated at 823,300 acres, 3 percent above 1986/87's record. The biggest gain was in Louisiana, with area up 15,000 acres. Florida added 10,000 acres, and Texas 4,300. Total U.S. cane area for processing into raw sugar was expected to be between 770,000-790,000 acres, up from 750,700 in 1986/87.

U.S. sugar imports in fiscal 1986/87 were 1.825 million short tons, raw value, down 23 percent from 1985/86. The total contains sugar imported under quota, sugar imported for re-export as white sugar, sugar for polyhydric alcohol, and Puerto Rican sugar for refining. The U.S. import quota for 1987 was slightly more than 1 million tons. Since the U.S. imposed quotas in May 1982, the differential between the U.S. price (contract no. 12 or 14, c.i.f./duty-paid, New York) and the world price (contract no. 11, f.o.b. Caribbean) has averaged 14.6 cents/lb. Even after allowing 1.5 cents/lb. to transport world sugar to New York, a substantial difference remains. This has boosted imports of products with high sugar content.

Since early 1987, nearby futures prices for domestic raw sugar (no. 14) have remained fairly steady. After reaching a 1987 high of 22.16 cents/lb. at the end of June, prices fell slightly, averaging 21.85 cents in early September, because of forecasts for a large 1987/88 U.S. crop and because commercial stocks, excluding Commodity Credit Corporation holdings, were higher. Retail prices averaged close to 35 cents/lb. in 1987; they hadn't changed much in five years.

Futures and Options Markets

World and domestic raw sugar futures are traded on the New York Coffee, Sugar and Cocoa Exchange (CSCE). World raw sugar futures are listed on the London United Terminal Sugar Market. White sugar futures are traded on the Paris International Sugar Market and the London Terminal. In October 1987, the CSCE began trading a white sugar futures contract. Options on the No. 11 contract are traded on the CSCE, and options are traded on the London Futures and Options Exchange.

United States Foreign Trade of Sugar (Raw & Refined) In Thousands of Short Tons

Year		Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1986[1]	Exports	61	21	35	23	32	20	22	60	57	35	45	44	454
	Imports	174	131	208	158	173	152	191	115	158	127	203	123	1,913
1987[1]	Exports	84	50	63	85	87	34	53	28	27	33			
	Imports	33	129	140	146	116	74	167	65	139	87			

[1] Preliminary. *Source: Bureau of the Census*

SUGAR

United States Sugar (Cane & Beet) Supply and Utilization In Thousands of Short Tons (Raw Value)

	Supply								Utilization						
	Production			Offshore Receipts									Domestic Disappearance	Military & Civilian	
Year	Cane	Beet	Total	Foreign	Territories	Total	Beginning Stocks	Total Supply	Total Use	Exports	Net Changes in Invisible Stocks	Refin. Loss Adjust[3]	Imp. Blends & Mixtures	Total	Per Capita
1977	2,666	3,423	6,089	6,138	102	6,240	3,498	15,827	11,336	22	201	14	—	11,099	94.2
1978	2,535	3,067	5,602	4,683	52	4,735	4,491	14,828	11,074	48	29	108	—	10,889	91.4
1979	2,727	3,066	5,793	5,027	47	5,074	3,754	14,621	10,921	73	-12	103	—	10,756	89.3
1980	2,684	3,052	5,736	4,495	178	4,673	3,701	14,110	11,028	689	72	78	—	10,189	83.6
1981	3,043	3,182	6,225	5,025	48	5,073	3,082	14,380	10,919	1,191	-94	53	—	9,769	79.4
1982	2,776	3,160	5,936	2,964	80	3,044	3,461	12,441	9,373	137	30	53	—	9,153	73.7
1983	3,094	2,588	5,682	3,186	67	3,253	3,068	12,003	9,433	300	249	72	—	8,812	70.2
1984	2,831	3,059	5,890	3,559	24	3,583	2,570	12,043	9,038	429	89	58	8	8,454	66.7
1985	3,100	2,869	5,969	2,797	36	2,833	3,005	11,807	8,681	464	-82	122	15	8,035	62.8
1986[1]	3,056	3,201	6,257	2,223	31	2,254	3,126	11,637	8,410	557	- 9	28	30	7,786	60.2
1987[2]	3,325	3,550	6,857	1,630	35	1,665	3,227	11,767	8,837	555	0	50	30	8,025	61.5
1988[2]							2,930								

[1] Preliminary. [2] Estimate. [3] Residual. *Source: Agricultural Marketing Service, U.S.D.A.* T.645

Sugar Cane for Sugar & Seed and Production of Cane Sugar and Molasses in the United States

			Production					Farm Value		Sugar Production			Molasses Made	
										Raw Value				
Year	Acreage Harvested 1,000 Acres	Yield of Cane per Har. Acre Tons	for Sugar 1,000 Tons	for Seed 1,000 Tons	Total 1,000 Tons	Sugar Yield per Acre Sh. Tons	Farm Price $ per Ton	of Cane used for Sugar 1,000 Dollars	of Cane used for Sugar & Seed 1,000 Dollars	Total 1,000 Tons	Per Ton of Cane Lbs.	Refined Basis 1,000 Tons	Edible 1,000 Gallons	Total 1,000 Gallons
1976	747	37.6	26,919	1,201	28,120		13.70	408,403	425,342	2,724	202	2,545	2,574	180,730
1977	759	35.3	25,730	1,100	26,830		18.50	454,217	474,257	2,684	209	2,508	2,538	164,894
1978	744	35.0	24,821	1,176	25,997		19.40	483,905	507,069	2,612	210	2,441	2,750	161,810
1979	733	36.2	25,410	1,122	26,532		26.00	661,212	690,544	2,700	213	2,524	2,900	164,581
1980	733	36.8	25,582	1,381	26,963		38.50	984,559	1,035,990	2,728	213	2,550	1,900	163,341
1981	755	36.3	26,165	1,243	27,408	3.96	24.90	650,721	681,983	2,833	217	2,647	2,100	182,656
1982	742	40.1	28,450	1,321	29,770	4.37	26.50	755,038	789,896	3,063	215	2,863	1,550	177,041
1983	768	36.7	27,201	960	28,161	4.00	27.80	755,574	781,393	2,930	215	2,739	1,850	177,725
1984[1]	747	36.6	26,008	1,332	27,340	4.29	N.A.	N.A.	N.A.	3,007	231	2,811	2,070	175,573
1985[1]	770	36.6	26,877	1,336	28,213	4.20				3,033	226	2,835	1,900	180,189
1986[1]	796	38.1	28,473	1,348	30,311	4.37				3,281		2,946		182,086
1987[2]	828	37.3			30,869					3,375				

[1] Preliminary. [2] Estimate. *Source: Statistical Reporting Service, U.S.D.A.* T.646

U.S. Sugar Beets, Beet Sugar, Pulp, & Molasses Produced from Sugar Beets & Raw Sugar Spot Prices

	Sugar Beets							Sugar Production		Raw Sugar Prices			
	Acreage										Cof., Sugar Exch.		
Year of Harvest	Planted 1,000 Acres	Harv. 1,000 Acres	Yield Per Har Acre Tons	Production 1,000 Tons	Sugar Yield per Acre Sh. Tons	Price[1] Dollars	Farm Value $1,000	Refined Basis 1,000 Sh. Tons	Equivalent Raw Value[2] 1,000 Sh. Tons	World[4] Intern Agreem Cents Per Lb.	World Cents Per Lb.	N.Y. Duty Paid Cents Per Lb.	Wholesale List Price HFCS (42%) Nor. East
1977	1,273	1,216	20.6	25,007		24.20	604,399	2,905	3,108	8.10	8.11	11.00	13.05
1978	1,305	1,269	20.3	25,788		25.20	649,846	3,074	3,289	7.81	7.82	13.93	12.32
1979	1,161	1,120	19.6	21,996		33.90	745,273	2,691	2,879	9.65	9.66	15.56	13.54
1980	1,231	1,190	19.8	23,502		47.20	1,108,974	2,943	3,149	28.66	29.02	30.11	24.27
1981	1,252	1,228	22.4	27,538	2.76	29.20	803,569	3,166	3,388	16.89	16.93	19.73	21.94
1982	1,054	1,027	20.3	20,894	2.67	35.40	740,342	2,558	2,737	8.40	8.42	19.92	16.82
1983	1,081	1,056	19.9	20,992	2.56	37.00	777,718	2,522	2,699	8.46	8.49	22.04	18.46
1984	1,124	1,096	20.2	22,134	2.65	33.90	750,162	2,715	2,905	5.21	5.18	21.74	20.41
1985	1,125	1,103	20.4	22,529	2.72	N.A.	N.A.	2,804	3,000	4.06	4.04	20.34	19.38
1986[3]	1,232	1,191	21.2	25,224	2.87			3,113	3,414	6.04	6.05	20.95	19.30
1987[5]	1,268	1,248	22.2	27,666					3,625	6.65	6.60	22.00	18.00

[1] Includes support payments, but excludes Sugar beet payments. [2] Refined sugar multiplied by factor of 1.07. [3] Preliminary. [4] International Sugar Agreement, World Price. [5] Estimate. *Source: Statistical Reporting Service, U.S.D.A.* T.647

Raw Sugar N.Y. Spot Price (C.I.F., Duty/Fee Paid, Contract #12 & #14) In Cents per Pound

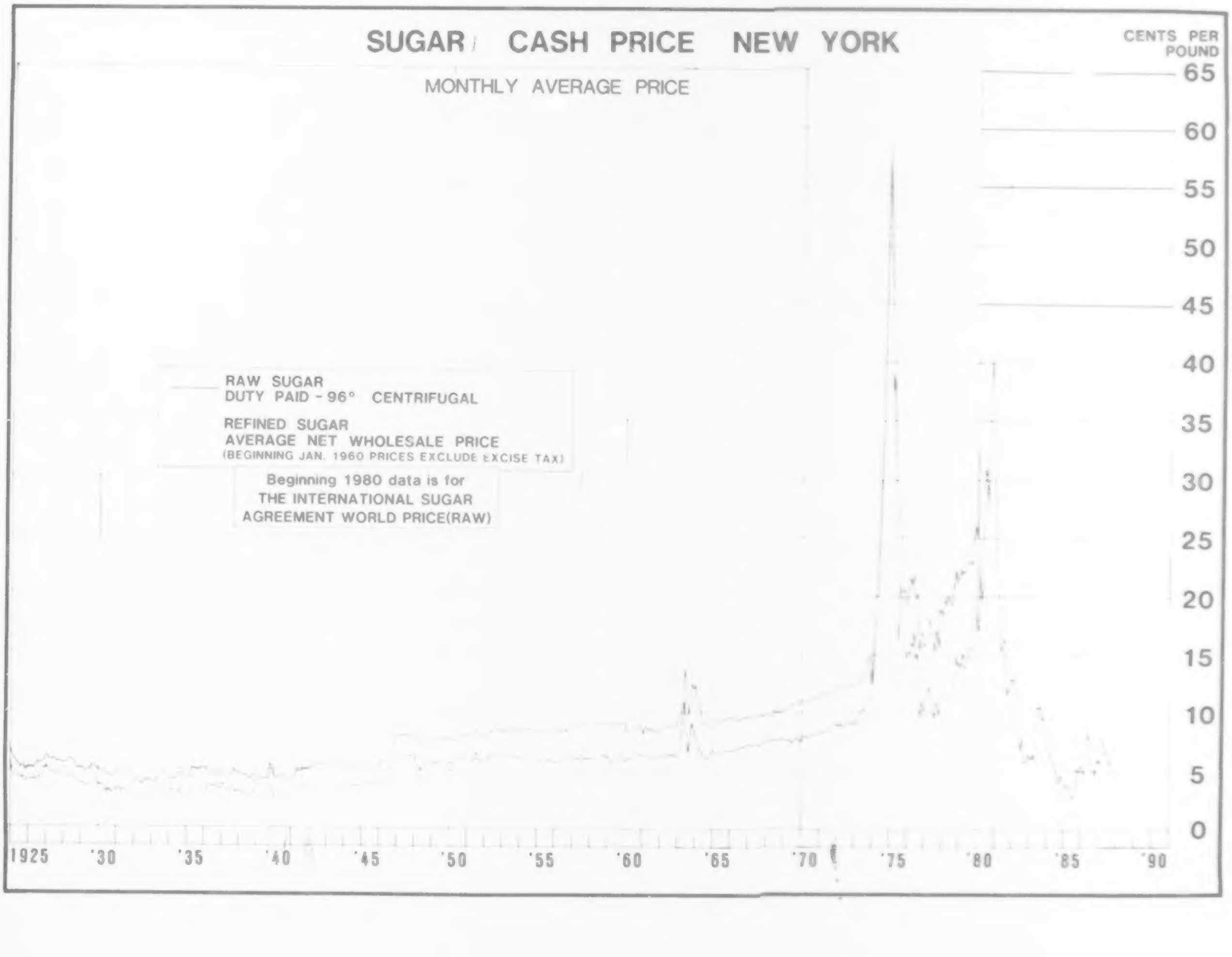
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	19.66	24.69	21.18	22.67	31.89	32.10	28.75	33.14	36.03	41.70	39.28	30.29	30.11
1981	29.57	26.07	23.81	19.91	17.43	18.95	19.10	17.42	15.49	15.66	16.28	17.07	19.73
1982	18.16	17.77	17.13	17.89	19.57	21.03	22.15	22.45	20.88	20.44	20.79	20.83	19.92
1983	21.23	21.76	21.86	22.43	22.60	22.54	22.09	22.55	22.20	21.94	21.83	21.47	22.04
1984	21.51	21.90	22.00	22.03	22.01	22.06	21.89	21.72	21.70	21.56	21.40	21.10	21.74
1985	20.72	20.38	20.91	20.97	21.09	21.27	21.23	20.59	19.51	18.68	18.89	19.89	20.34
1986	20.67	21.01	20.95	20.85	20.88	20.99	20.97	20.87	20.87	21.08	21.17	21.12	20.95
1987	21.50	21.76	21.76	21.81	22.01	22.06	22.07	21.88					

Sources: Economic Research Service, U.S.D.A.; N.Y. Coffee & Sugar Exchange T-648

World Production of Sugar (Centrifugal Sugar–Raw Value) In Thousands of Metric Tons

Crop Year	Australia Cane	Brazil Cane	Mainland China	Cuba Cane	South Africa Cane	India Cane	Indonesia Cane	Philippines Cane	Poland Beet	West Germany	Thailand	United States	USSR Beet	Mexico	France	World All
1982–3	3,535	9,300	4,132	7,200	2,256	9,508	1,731	2,521	2,009	3,591	2,305	5,359	7,392	3,078	4,833	101,342
1983–4	3,414	9,400	3,825	8,330	1,462	7,042	1,762	2,381	2,141	2,726	2,305	5,275	8,700	3,242	4,153	96,542
1984–5	3,548	9,300	4,627	8,100	2,514	7,071	1,709	1,767	1,878	3,146	2,533	5,289	8,587	3,436	4,301	100,183
1985–6	3,404	8,400	5,535	7,200	2,247	7,983	1,728	1,561	1,811	3,430	2,586	5,461	8,260	3,928	4,297	98,997
1986–7[2]	3,438	8,800	5,772	7,220	2,120	9,093	1,800	1,370	1,892	3,470	2,621	6,247	8,700	4,000	3,734	102,766
1987–8[1]	3,400	9,200	5,657	7,250	2,225	8,940	1,900	1,350	1,800	2,900	2,450	6,509	8,300	4,150	4,020	101,197

[1] Estimated. [2] Preliminary. *Source: Foreign Agricultural Service, U.S.D.A.* T-644



United States Production & Imports of Edible Syrups In Thousands of Gallons

	Production[2]						Imports			
	Syrups									
Year	Corn	Maple	Refiners'	Edible Molasses	Honey	Total	Maple Syrup	Edib. Molas. & Cane Syrup	Honey	Total
1980	941,056	973	1,983	1,900	16,871	962,783	856	3,422	4,143	8,420
1981	1,073,933	1,410	1,446	2,100	15,703	1,094,592	1,046	2,040	6,530	9,616
1982	1,212,759	1,292	1,003	1,550	18,666	1,235,270	1,154	2,566	7,767	11,487
1983	1,334,557	1,150	1,000	1,850	17,314	1,355,871	1,288	2,336	9,277	12,900
1984	1,501,377	1,366	950	2,070	13,936	1,519,699	1,248	3,495	10,869	15,612
1985[1]	1,721,980	1,325	900	1,900	12,669	1,738,774	1,323	4,164	11,676	17,163
1986[1]							1,673			
1987[3]							1,493			

[1] Preliminary. [2] Production of cane syrup, sorghum syrup, & edible molasses is of the fall of the preceding year. [3] Estimate.
Source: Agricultural Marketing Service, U.S.D.A. T.652

U.S. Exports & Domestic Consumption of Edible Syrups, Corn Sugar & Sugar In Thousands of Gallons

	Exports			Indicated Domestic Consumption					Per Capita Consumption in Pounds							
				Syrups									Sugar			
Year	Corn Syrup	Honey	Total	Corn	Maple	Cane & Refin. & Edib. Mol.	Honey	Total	Corn Sweeteners[2]	Caloric Sweeteners	Aspartame	Saccharin	U.S. Grown	Cane	Total	Total All Sweeteners
1980	3,498	722	4,220	937,558	1,828	7,620	20,292	967,298	40.2	125.1	0	7.7	51.2	56.8	83.6	132.8
1981	2,916	777	3,693	1,071,017	2,456	5,586	21,456	1,100,515	44.5	125.1	.2	8.0	47.1	53.8	79.4	133.3
1982	791	721	1,512	1,211,968	2,446	5,119	25,712	1,245,245	48.2	123.2	1.0	8.4	49.8	48.4	73.7	132.6
1983	1,223	630	1,853	1,333,334	2,437	5,186	25,961	1,366,918	52.2	124.6	3.5	9.5	47.1	47.9	71.1	137.6
1984	656	627	1,283	1,500,721	2,614	6,515	24,178	1,534,028	57.8	126.7	5.8	10.0			67.6	142.5
1985[1]	534	549	1,083	1,721,466	2,648	7,134	23,796	1,755,024	66.6	131.4	12.0	6.0			63.3	149.4
1986[1]					2,463				67.3	129.5	13.0	5.5			60.8	148.0
1987[3]					2,047				67.8	131.3					62.1	

[1] Preliminary. [2] Corn syrup & dextrose. [3] Estimate. *Source: Agricultural Marketing Service, U.S.D.A.* T.653

Sugar Deliveries and Stocks in the United States In Thousands of Short Tons, Raw Value

	Deliveries by Primary Distributors							Stocks (January 1)					
Year	Cane[1] Sugar Refineries	Beet Sugar Factories	Importers of Direct Consumption Sugar	Cane Sugar Mills[1]	Total	Sales of Refined Sugar For Export	Total Domestic Consumption[2]	Cane Sugar Refineries	Beet Sugar Factories	Comm. Credit Corp.	Refiners Raws	Mainland Cane Mills	Total
1981	6,618	3,151	17	24	10,207	1,191	9,769	315	1,286	20	691	658	2,970
1982	6,127	3,026	46	24		137	9,153	272	1,277	20	844	931	3,344
1983	5,910	2,902				300	8,812	262	1,417	—	517	701	2,897
1984	5,722	2,732				429	8,454	225	1,103	—	528	592	2,448
1985	4,937	3,062				464	8,035	214	1,430	—	473	762	2,879
1986[3]	4,586	2,906				365	7,786	197	1,189	220	523	834	2,964
1987[4]							7,820	211	1,304	177	516	830	3,038

[1] Sugar for direct consumption only. [2] Includes deliveries for U.S. military forces at home and abroad. [3] Preliminary. [4] Estimate.
Source: Department of Agriculture T.654

Sugar, Refined—Deliveries by Type of Product of Buyer in the U.S. In Thousands of Short Tons

Year	Bakery & Cereal Pdts.	Beverages	Confectionery[2]	Institutions	Dairy Products	Processed Foods	Other Food Uses	Retail Grocers[4]	Wholesale Grocers[5]	Other Uses[6]	Total Deliveries	In Consumer Size Pckgs.	To Industrial Users
1981	1,306	1,852	983	259	459	484	581	1,161	2,001	126	9,212	2,425	737
1982	1,296	1,583	940	177	404	450	526	1,086	1,951	106	8,519	2,310	727
1983	1,387	1,248	1,087	195	385	454	431	1,168	1,713	131	8,199	2,314	567
1984	1,404	908	1,115	209	408	433	416	1,100	1,744	127	7,863	2,274	570
1985	1,494	340	1,059	204	456	428	441	1,045	1,874	131	7,472	2,185	734
1986[1]	1,432	266	1,051	142	447	387	443	1,066	1,867	138	7,239	2,298	635
1987[6]	1,490	225	1,100	160	450	390	500	1,000	1,880	140	7,500	2,100	730

[1] Preliminary. [2] Used largely for pharmaceuticals & some tobacco. [3] And related products. [4] Chain stores, supermarkets. [5] Jobbers, sugar dealers. [6] Forecast. *Source: Stat. Rep. Serv., U.S.D.A.* T.649

World Stocks of Centrifugal Sugar as of Sept. 1 In Thousands Metric Tons (Raw Value)

Sugar-Making Season	Australia	Brazil	France	West Germany	India	Italy	Japan	Mexico	Netherlands	Philippines	Sweden	Iran	United Kingdom	U.S. & Insular	Total
1976–7	328	1,746	174	165	737	337	98	642	139	744	138	207	139	2,399	10,574
1977–8	534	1,286	706	202	732	562	104	198	199	1,607	127	304	253	2,718	12,820
1978–9	383	1,516	947	305	1,448	859	350	134	207	1,290	140	364	234	3,375	15,843
1979–0	687	3,008	962	537	1,934	758	421	138	222	1,214	108	354	455	3,549	19,122
1980–1	555	1,959	899	535	386	833	497	192	196	727	93	325	625	2,904	14,353
1981–2	499	2,234	415	300	706	663	212	167	181	158	75	275	706	2,508	12,322
1982–3	364	918	1,212	416	3,354	570	377	587	128	269	317	151	503	1,399	14,253
1983–4	486	918	1,566	558	4,999	479	340	1,112	178	375	281	201	204	1,277	18,508
1984–5	603	1,825	729	407	2,457	467	296	1,439	92	768	340	251	159	1,461	16,249
1985–8[1]	495	1,386	1,011	566	1,631	350	284	1,394	149	307	357		124	1,339	15,143

[1] Preliminary. *Source: Foreign Agricultural Service, U.S.D.A.* T.650

Month–End Open Interest of World Sugar (#11) Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1978	41,918	32,736	30,260	31,558	34,902	34,186	35,419	34,381	30,702	31,290	30,439	31,498
1979	35,004	34,529	36,200	31,824	36,521	39,646	44,938	58,184	61,442	73,701	87,182	92,007
1980	103,041	87,843	68,667	61,126	69,666	68,554	68,996	70,993	71,316	79,313	76,754	64,740
1981	61,522	57,087	59,025	54,898	62,330	61,022	66,730	64,604	52,740	60,761	66,399	72,326
1982	76,623	60,990	65,457	57,719	61,332	51,267	54,706	51,737	42,363	50,682	61,916	64,406
1983	78,889	76,429	83,851	88,011	99,100	94,091	94,216	94,245	80,360	81,261	83,302	84,059
1984	81,806	73,634	92,503	84,925	92,769	89,393	90,897	98,425	76,056	85,413	86,508	80,550
1985	91,973	81,892	84,390	78,336	94,570	81,969	91,489	92,291	85,946	84,583	97,145	93,355
1986	96,382	85,112	118,580	111,625	95,088	86,064	85,427	91,764	82,851	84,290	84,340	92,574
1987	105,733	95,869	90,775	95,034	92,870	93,889	98,898	102,111	96,033	95,197	115,200	135,754

Source: Coffee, Sugar & Cocoa Exch., Inc., N.Y. T.660

Volume of Trading of World Sugar (#11) Futures at New York In Contracts

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	61,854	70,103	86,634	79,359	65,623	98,323	75,940	116,271	115,808	99,632	75,243	71,983	1,016,773
1979	72,961	107,951	76,267	82,804	64,224	132,200	121,474	142,006	192,200	255,858	278,458	256,919	1,783,342
1980	381,805	354,441	338,118	245,233	309,417	277,846	271,884	279,149	317,170	295,673	250,627	255,379	3,576,702
1981	233,217	237,286	212,519	240,420	212,708	241,736	192,142	203,404	247,160	138,529	137,768	183,438	2,470,327
1982	166,913	209,386	199,263	217,689	138,377	177,657	176,641	144,980	151,639	140,262	160,656	154,657	2,037,020
1983	207,678	249,392	198,034	261,939	396,435	396,267	272,150	329,129	283,827	214,897	231,757	160,436	3,201,941
1984	192,451	205,499	252,489	227,150	175,268	213,491	163,955	228,279	263,419	234,008	154,735	124,579	2,449,549
1985	273,316	265,967	215,540	210,046	193,527	237,904	263,842	338,816	323,387	224,856	216,340	249,398	3,012,929
1986	308,044	268,053	382,053	519,027	343,746	289,900	281,124	235,555	328,830	258,744	173,612	195,126	3,583,814
1987	387,630	381,393	323,047	381,972	278,857	313,001	248,133	235,263	367,074	331,052	268,226	337,851	3,853,499

Source: Coffee, Sugar & Cocoa Exch., Inc., N.Y. T.661

United States Deliveries[1] of All Sugar by Primary Distributors In Thousands of Short Tons, Raw Value

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1979	838	774	964	811	893	947	923	1,103	860	924	879	840	10,756
1980	794	848	866	772	943	882	910	904	909	825	717	818	10,189
1981	——	2,208	——	——	2,532	——	——	2,725	——	——	2,305	——	9,770
1982	——	2,083	——	——	2,418	——	——	2,400	——	——	2,252	——	9,153
1983	——	2,078	——	——	2,195	——	——	2,349	——	——	2,190	——	8,812
1984	——	2,029	——	——	2,121	——	——	2,238	——	——	2,066	——	8,454
1985	——	1,909	——	——	1,972	——	——	2,150	——	——	2,004	——	8,035
1986	——	1,819	——	——	1,907	——	——	2,069	——	——	1,991	——	7,786
1987[2]	——	1,908	——	——	2,002	——							

[1] Includes for domestic consumption and for export. [2] Preliminary. *Source: Department of Agriculture* T.659

SUGAR

Centrifugal Sugar (Raw Value) Imported into Selected Countries In Thousands of Metric Tons

Crop Year	Algeria	Canada	Chile	France	West Germany	Israel	Japan	Malay-sia	Mor-occo	Nigeria	Iran	United Kingdom	China	United States	USSR	World Total[2]
1976	354	895	98	136	169	131	2,439	336	263		626	2,101	638	4,136	3,760	22,593
1977	431	1,064	342	110	108	153	2,708	336	389	329	277	1,870	1,676	5,290	4,776	25,949
1978	437	1,030	317	117	152	195	2,284	398	294	595	875	1,689	1,438	3,616	3,993	23,843
1979	513	1,010	294	103	146	256	2,605	418	279	530	746	1,424	985	4,437	4,080	24,827
1980	569	859	433	69	150	119	2,265	510	332	709	785	1,404	946	3,802	4,981	26,480
1981–2	535	929	194	376	186	180	2,209	432	350	600	755	1,307	1,060	3,196	6,883	28,935
1982–3	636	912	205	357	183	302	2,239	433	205	941	472	1,050	2,563	2,393	7,363	29,085
1983–4	550	1,001	226	363	180	261	1,868	560	224	863	623	1,500	1,777	2,667	5,998	27,530
1984–5[1]	595	1,054	188	360	175	319	1,903	580	319	439	607	1,300	1,348	3,021	5,704	27,937
1985–6[3]	554	1,145		664	180		1,857	663	300	600	650	1,162	1,216	3,302	5,030	28,245
1986–7[3]	613	1,103		680	165		1,775	620	300	600	650	1,200	1,350	2,811	4,525	26,444

[1] Preliminary. [2] Excludes U.S. trade with Territories. [3] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.655

Centrifugal Sugar (Raw Value) Exported from Selected Countries In Thousands of Metric Tons

Crop Year	Australia	Brazil	Czecho-slovakia	Cuba	Dom. Re-public	France	Thai-land	Mau-ritius	Peru	Philip-pines	South Africa	Taiwan	Un. King-dom	USSR	World Total[2]
1976	2,016	1,252	71	5,764	977	1,422	1,124	584	284	1,467	860	519	285	79	22,818
1977	2,558	2,518	171	6,238	1,101	1,816	1,657	637	434	2,443	1,384	599	178	87	28,271
1978	2,482	2,005	306	7,231	901	2,357	1,040	579	275	1,142	719	365	93	174	26,088
1979	2,002	1,860	242	7,269	986	2,347	1,190	641	181	1,150	884	387	76	244	26,373
1980	2,410	2,615	186	6,191	794	2,750	479	655	53	1,745	785	403	100	164	27,290
1981–2	2,620	2,984	160	7,734	816	3,226	2,419	560	63	1,314	851	380	122	268	33,044
1982–3	2,504	2,788	215	7,734	850	3,066	2,045	633	92	1,301	884	380	390	267	30,642
1983–4	2,425	2,801	115	6,792	956	3,300	1,411	644	120	999	569	186	240	148	28,842
1984–5[1]	2,591	3,040	234	7,017	885	3,000	1,444	562	130	1,200	687	130	175	204	28,434
1985–6[3]	2,858	2,600	200	6,875	450	2,854	2,142	640	55	296	1,207	177	292	175	29,905
1986–7[3]	2,840	2,500	200	6,520	493	2,576	1,650	750	33	200	800	35	300	175	29,629

[1] Preliminary. [2] Excludes U.S. trade with Territories. [3] Estimate. *Source: Agricultural Marketing Service, U.S.D.A.* T.656

Spot Raw Sugar International Sugar Agreement World Price In Cents per Pound

Year	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	7.57	8.23	8.46	7.82	7.85	8.14	8.52	8.85	9.90	11.94	13.68	14.93	9.65
1980	17.16	22.69	19.64	21.24	30.94	30.80	27.70	31.77	34.89	40.53	37.81	28.79	28.66
1981	27.78	24.09	21.81	17.83	15.06	16.38	16.34	14.76	11.65	12.04	11.97	12.98	16.89
1982	12.90	13.07	11.26	9.58	8.11	6.84	7.80	6.77	5.76	5.93	6.52	6.31	8.40
1983	6.03	6.43	6.20	6.71	9.24	10.74	10.53	10.56	9.43	9.69	8.33	7.67	8.46
1984	6.97	6.64	6.42	5.99	5.61	5.53	4.54	4.05	4.16	4.65	4.38	3.55	5.21
1985	3.62	3.70	3.83	3.42	2.82	2.78	3.18	4.39	5.14	5.01	5.48	5.34	4.06
1986	4.86	5.57	6.95	8.33	7.63	6.33	5.55	5.57	4.68	5.39	5.95	5.71	6.04
1987[1]	6.44	7.36	7.56	6.68	6.73	6.44	6.10	5.62					

[1] Preliminary. *Source: Sugar Division, Commodity Stabilization Service* T.657

Average Refined Cane Sugar[1] (Wholesale)—Chicago-West In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	———	19.15	———	———	19.15	———	———	19.15	———	———	21.27	———	19.68
1980	———	28.71	———	———	36.30	———	———	41.17	———	———	47.00	———	38.30
1981	———	35.50	———	———	27.47	———	———	25.43	———	———	24.63	———	28.95
1982	———	27.50	———	———	26.77	———	———	28.20	———	———	28.00	———	27.62
1983	———	24.53	———	———	26.53	———	———	26.96	———	———	26.56	———	26.09
1984	———	26.62	———	———	26.42	———	———	25.35	———	———	24.24	———	25.66
1985	23.50	23.42	23.00	23.12	23.55	23.12	23.25	23.50	23.44	23.13	22.50	22.62	23.18
1986	23.45	23.31	23.25	23.50	23.30	23.00	23.38	24.20	24.19	23.50	23.00	23.00	23.42
1987	23.30	23.50	23.50	23.50	24.15	24.44	24.50	24.50					

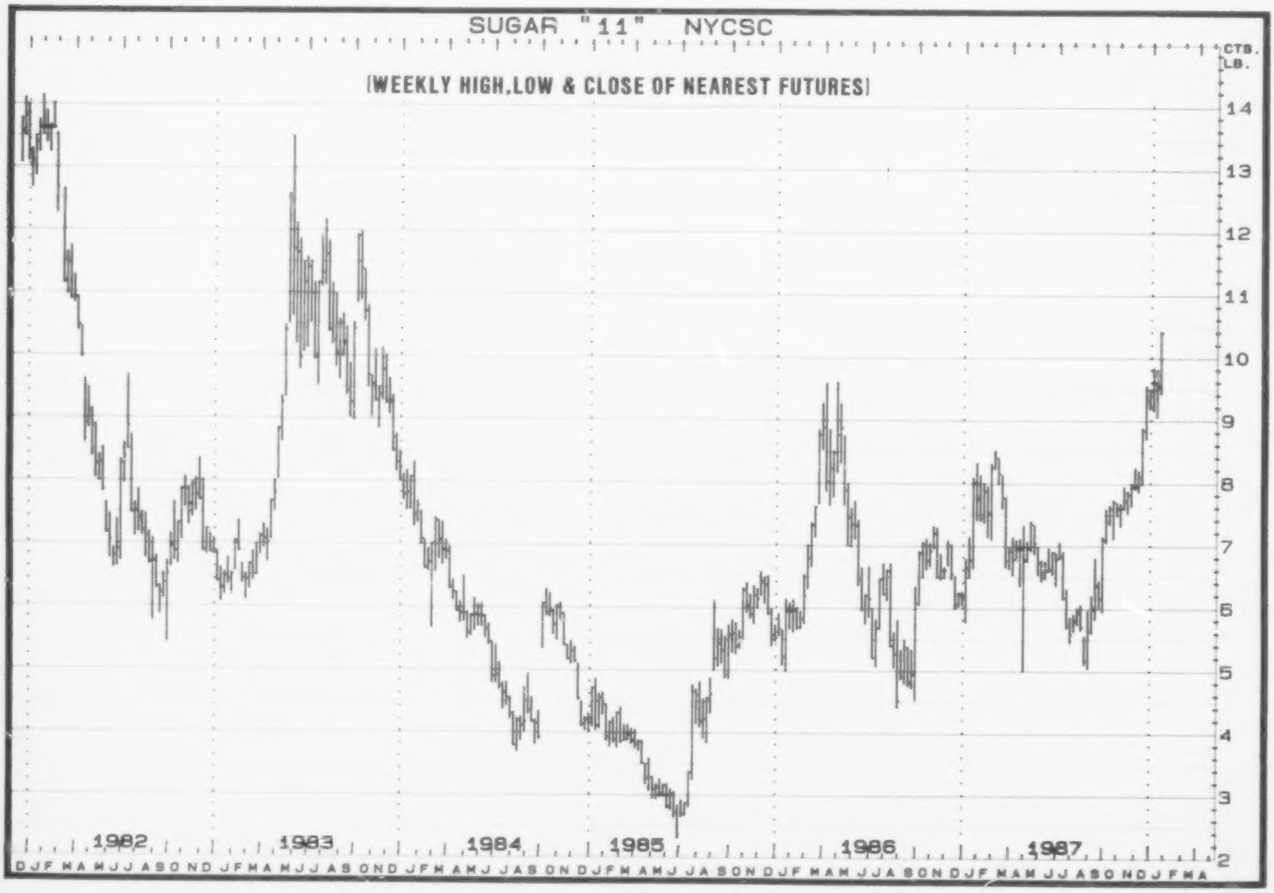
[1] These are f.o.b. basis prices in bulk, not delivered prices. To obtain delivered prices, add freight "prepays" & deduct discounts & allowances. Prior to 1982 prices are for 100-lb. paper bags. *Source: Economics & Statistics Service, U.S.D.A.* T.658

High, Low & Closing Prices of March World Sugar (#11) At New York In Cents per Pound

Year of Delivery		Year Prior to Delivery													Delivery Year		Life of Delivery Range
		Dec	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec	Jan	Feb	
1983	High	15.15	15.25	15.05	13.68	12.51	10.50	9.35	10.74	8.97	8.22	7.85	8.33	8.28	6.84	7.34	15.25
	Low	13.98	14.03	13.49	12.18	10.28	9.24	8.28	8.37	7.83	7.05	6.60	7.27	6.80	6.05	6.08	6.05
	Close	14.71	14.90	13.65	12.49	10.52	9.25	9.33	8.78	7.96	7.11	7.84	8.32	6.85	6.20	6.28	—
1984	High	9.95	8.92	9.45	9.00	9.77	14.48	13.50	13.16	13.44	11.96	11.94	10.10	9.62	8.29	7.66	14.48
	Low	8.75	8.48	8.11	8.08	8.72	9.60	11.33	10.84	11.60	10.98	9.33	8.82	7.99	7.26	5.65	5.65
	Close	8.98	8.62	8.17	9.00	9.64	14.48	12.52	12.79	11.63	10.94	9.36	9.57	8.18	7.50	5.73	—
1985	High	11.50	10.25	9.60	9.44	9.12	8.39	7.70	6.74	6.08	6.17	6.27	6.05	5.35	4.84	4.45	13.60
	Low	10.06	9.38	8.63	8.74	8.28	7.19	6.61	5.62	4.94	5.05	5.33	5.08	4.02	4.01	3.74	3.74
	Close	10.16	9.56	8.75	9.04	8.40	7.45	6.73	5.72	5.80	5.44	5.83	5.28	4.16	4.32	4.10	—
1986	High	7.40	7.12	6.43	6.05	5.21	4.69	4.33	5.45	5.59	6.20	6.15	6.39	6.56	6.13	6.52	8.27
	Low	6.02	6.13	5.70	5.05	4.58	3.98	3.34	3.59	4.41	5.17	5.25	5.73	5.38	4.97	5.60	3.34
	Close	6.22	6.31	5.83	5.06	4.17	4.28	3.63	5.22	5.13	5.65	6.14	6.13	5.62	5.92	6.28	—
1987	High	7.68	7.60	7.50	9.48	9.67	9.50	8.30	7.54	7.62	6.53	7.10	7.30	7.07	8.32	8.30	9.67
	Low	6.70	6.45	6.95	7.33	8.31	7.65	6.70	6.17	6.15	5.83	5.75	6.45	5.99	5.77	7.09	5.75
	Close	6.96	7.36	7.37	9.43	9.43	8.00	7.51	7.20	6.16	6.28	6.90	6.60	6.16	7.74	8.24	—
1988	High	8.01	8.89	8.70	8.95	8.05	8.03	7.73	7.58	7.02	7.35	7.73	8.12	9.55			
	Low	7.18	7.04	7.97	7.40	7.22	7.40	7.15	6.53	6.39	6.43	6.79	7.31	7.86			
	Close	7.30	8.41	8.65	7.45	7.75	7.52	7.39	6.71	6.56	6.96	7.59	8.01	9.49			
1989	High	9.65															
	Low	8.25															
	Close	9.61															

Source: Coffee, Sugar & Cocoa Exchange, Inc., N.Y.

T.662



Sulfur

The world's resources of sulfur--in elemental form in evaporative and volcanic deposits and in compounds associated with natural gas, petroleum, tar sands, and metal sulfides--are estimated at 5 billion tonnes. However, nearly two-thirds of elemental sulfur produced is a by-product of petroleum or natural gas refining and processing. The amount of sulfur produced from those sources depends on demand for fuels.

There are no adequate substitutes for sulfur in most of its applications. In 1986, approximately 87 percent of the sulfur consumed in the U.S. went into sulfuric acid prior to its end use. Based on preliminary data, U.S. sulfur production in 1987 was estimated at 11.2 million tonnes, compared with 11.1 million in 1986. Declines in production from frasch were more than compensated for by increased by-product recovery. Shipments were also estimated at 11.2 million tonnes, little changed from 11.1 million in 1986. Prices fell during 1987, primarily because of pressure from imports, and were preliminarily estimated at $91 a tonne, versus $105 in 1986.

World production and demand have been relatively stagnant, with production estimated at 54.1 million tonnes for 1986 and 54.5 million for 1987. Consumption was approximately 1 million tonnes over production in 1986, but stock drawdowns (primarily in Canada, the world's leading sulfur exporter) met the demand. Since supplies apparently will continue to hang over this market, prospects for significant price improvement appear limited, although prices of products made from sulfur, such as fertilizers, have increased.

World Production of Sulfur [All Forms] In Thousands of Metric Tons

Year	Canada	Chile	China	France	West Germany	Israel	Italy	Japan	Mexico	Poland	Spain	Turkey	USSR	United States	Yugoslavia	World Total
1980	7,260	115	2,200	2,216	1,799	10	604	2,784	2,217	5,535	1,236	126	9,590	11,866	457	54,983
1981	6,799	143	2,300	2,042	1,732	10	544	2,609	2,178	5,003	1,268	131	9,900	12,145	490	53,550
1982	6,280	137	2,300	2,035	1,821	10	489	2,595	1,916	5,130	1,172	109	9,650	9,787	557	50,559
1983	6,577	131	2,850	1,910	1,322	10	490	2,613	1,702	5,180	1,204	112	9,650	9,290	481	50,298
1984	6,606	86	2,650	1,862	1,481	10	400	2,592	1,985	5,210	1,231	119	9,700	10,652	464	52,496
1985[1]	6,670	109	2,900	1,723	1,569	10	481	2,498	2,180	5,096	1,355	118	9,725	11,609	496	54,587
1986[2]	6,516	147	3,100	1,306	1,575	10	494	2,361	2,165	5,120	1,310	115	9,825	11,087	503	54,161

[1] Preliminary. [2] Estimate. [3] Content of ore. *Source: Bureau of Mines* T 663

Salient Statistics of Sulfur in the United States In Thousands of Metric Tons of Sulfur Content

	Production of												Sales Value of Shipments—For Mine Plant		
	Native Sulfur[2]														
		Mines													
Year	Frasch-Process Total	Louisiana	Texas	Recovered Elemental Brimstone	Pyrites (Includ. Coal Brasses)	By-product Sulfuric Acid[3]	Other Sulf. Acid Compounds	Production (All Forms)	Imports Pyrites & Sulfur	Producers Stocks Dec. 31[4]	Exports (Elemental)	Apparent Consumption (All Forms)	FAASCH	Recovered	Average
													$ Per Tonne		
1980	6,390	2,309	4,081	4,073	322	1,003	78	11,866	2,523	3,094	1,673	13,659	97.36	74.13	89.06
1981	6,348	2,440	3,908	4,259	307	1,159	72	12,145	2,522	3,546	1,392	12,785	121.11	97.97	111.48
1982	4,210	1,312	2,898	4,404	265	828	80	9,787	1,905	4,218	961	10,059	120.79	97.89	108.27
1983	3,202	1,286	1,915	4,955	N.A.	831	302	9,290	1,695	3,223	992	10,988	100.76	76.22	87.24
1984	4,193	1,937	2,257	5,214	N.A.	962	283	10,652	2,557	2,419	1,334	12,679	109.20	80.02	94.31
1985	5,011	2,071	2,940	5,313	N.A.	957	328	11,609	2,104	2,799	1,365	11,968	122.62	92.11	106.46
1986[1]	4,043	1,579	2,463	5,816	N.A.	919	309	11,087	1,347	2,748	1,895	10,586	123.79	92.06	105.22
1987[5]	3,600			6,100					1,600	2,500	1,500	11,000			

[1] Preliminary. [2] Or sulfur ore. [3] Basis 100%, produced at Cu, Zn, & Pb plants. [4] Frasch & recovered. [5] Estimates. *Source: Bureau of Mines* T 664

Sulfur Consumption & Foreign Trade of the United States In Thousands of Metric Tons

		Apparent Consumption of Sulfur in All Forms[3]									Foreign Trade			
											Exports		Imports	
Year	Net Import Reliance as a % of Apparent Consumption	Native Sulfur (Frasch)	Recovered Sulfur Shipm.	Total Pyrites Shipments	Smelter Acid Prod. Shipm.	Other Prod.[2] Shipm.	Total	Imports of Recovered Sulfur	Sales to Consumers of Frasch Sulfur	Imports of Frasch Sulfur	Quantity	Value Ths. $	Quantity	Value Ths. $
1980	14	6,717	4,115	322	1,003	78	13,659	1,533	7,400	990	1,673	185,866	2,523	138,852
1981	5	5,550	4,207	307	1,159	72	12,785	1,666	5,910	856	1,392	187,407	2,522	209,766
1982	4	3,557	4,344	265	828	80	10,059	1,215	3,598	690	961	122,143	1,905	164,885
1983	15	4,114	5,041	N.A.	831	302	10,988	1,091	4,111	604	992	109,298	1,695	129,110
1984	16	4,812	5,210	N.A.	962	283	12,679	1,835	5,001	722	1,334	156,067	2,557	200,189
1985	3	4,416	5,266	N.A.	957	328	11,968	1,380	4,678	724	1,365	189,248	2,104	199,240
1986[1]	—	3,584	5,798	N.A.	919	309	10,586	621	4,108	726	1,895	251,664	1,347	142,220

[1] Preliminary. [2] Includes hydrogen sulfide, liquid sulfur dioxide. [3] Crude sulfur equivalent. *Source: Bureau of Mines* T 665

Sunflowerseed and Oil

World sunflowerseed production in 1987/88 was projected by USDA at 19.8 million tonnes, 4 percent more than a year earlier. Sunseed comprises nearly 10 percent of world oilseed output.

Most of the production increase was in Argentina, with an expected crop of 3.1 million tonnes, 36 percent higher than a year earlier. The European Community was expected to harvest 3.9 million tonnes, up 20 percent due to more acreage, higher yields, and price supports. In the USSR, the largest producer, the crop of 5 million tonnes was down 5 percent. While the Soviets increased acreage, a difficult harvest reduced yields. The U.S. crop was put at 1.03 million tonnes, off 15 percent and the third consecutive decline. Reasons for the drop were low prices, large vegetable oil stocks, and competition from price-supported crops.

World exports of sunseed were projected to increase 7 percent to 1.6 million tonnes. The U.S. is rapidly losing market share, because of reduced production and foreign competition. Mexico had been an important market for U.S. sunseed, but now buys more Canadian rapeseed. The EC had been a market also, but through subsidies is now producing more of its needs. Spain is becoming a major producer and sunoil exporter, and France is a large sunseed exporter.

The world sunseed crush was projected at 16.9 million tonnes, up 3 percent from 1986/87. Argentina's crush was put at 2.8 million tonnes, up 28 percent. Major crushers are the USSR, Argentina, and China. World sunseed meal production was estimated at 7.7 million tonnes, 3 percent more than a year earlier. Argentina produced 1.2 million tonnes, and exported 87 percent of it. The EC is the major importer. World sunseed meal use in 1987/88 was estimated at 7.7 million tonnes, up 1 percent. The USSR is by far the largest user. Ending meal stocks were projected at 165,000 tonnes, down slightly from a year earlier.

World sunseed oil production in 1987/88 was estimated at 6.7 million tonnes, up 3 percent from a year earlier. Sunoil is the fourth largest vegetable oil produced in the world, behind soyoil, palm oil, and rape oil. One reason for sunoil's increased use is its high content of polyunsaturated fats. World exports of sunseed oil were projected at 1.9 million tonnes, 5 percent more than a year earlier. Argentina, the major exporter of sunoil, was projected to ship 770,000 tonnes in 1987/88. U.S. exports were expected to rise somewhat, due to the use of export subsidies; primary U.S. markets are Mexico and Venezuela. Major importers are Egypt, the USSR, and Algeria. World consumption of sunoil was pegged at 6.6 million tonnes, or 2 percent more than a year earlier.

Ending stocks of sunseed oil were put at 454,000 tonnes, 9 percent less than a year earlier.

World Production of Sunflowerseed In Thousands of Metric Tons

Crop Year	Argentina	Australia	Bulgaria	Burma	China	France	Hungary	India	Romania	South Africa	Spain	Turkey	United States	USSR	Yugoslavia	World Total
1984–5	3,400	293	462	141	1,704	957	600	440	851	235	1,100	710	1,698	4,527	154	17,986
1985–6	4,100	228	354	216	1,732	1,484	673	301	710	272	990	700	1,430	5,234	233	19,482
1986–7[1]	2,200	178	475	250	1,400	1,904	856	450	1,004	403	920	1,030	1,210	5,260	450	18,950
1987–8[2]	2,800	190	375	250	1,400	2,500	825	475	700	420	1,000	1,000	1,030	5,550	500	19,730

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.668

Sunflowerseed Statistics in the United States

Crop Year Begin Sept.	Acres Harvested In Ths.	Yield per Harv. Acre Pounds	Farm Price $ Metric Ton	Value of Production Mil. $	Supply				Disappearance					
					Production	Imports	Stocks Sept. 1	Total	Crushings	Exports	Non-Oil Usage	Seed	Residual	Total
					In Thousands of Metric Tons									
1984–5	3,692	1,014	249	422.8	1,698	26	38	1,762	567	991	114			1,672
1985–6	2,844	1,109	175	250.3	1,430	26	90	1,546	674	365	295			1,334
1986–7[1]	1,955	1,369	151	183.3	1,214	7	212	1,433	635	324	221			1,180
1987–8[2]	1,677	1,356	155	159.8	1,031	11	253	1,295	550	250	195			995

[1] Preliminary. [2] Estimate. *Source: Economic Research Service, U.S.D.A.* T.666

Sunflowerseed Statistics in the United States In Metric Tons

Crop Year Begin Oct.	Sunflowerseed Oil							Sunflowerseed Meal						
	Supply			Disappearance			Price $ per Metric Ton (Crude Mpls.)	Supply			Disappearance			Price $ per Metric Ton 28% Protein
	Stocks Oct. 1	Production	Total	Exports	Domestic	Total		Stocks Oct. 1	Production	Total	Exports	Domestic	Total	
1984–5	6	219	225	130	65	195	661	5	321	326	14	307	321	58
1985–6	30	265	295	205	65	270	421	5	357	362	44	313	357	76
1986–7[1]	25	261	286	150	91	230	350	5	305	310	45	260	305	85
1987–8[2]	45	220	265	140	95	235	364	5	275	280	30	245	257	85

[1] Preliminary. [2] Estimate. *Source: Economic Research Service, U.S.D.A.* T.667

Tall Oil

Tall Oil—Supply & Distribution in the U.S. In Millions of Pounds

Year Beginning Oct. 1	Supply (Crude)			Disposition										
						Non Food Products								
	Production	Stocks Oct. 1	Total Supply	Exports	To U.S. Territ.	Soap	Paint & Varnish	Lino-leum & Oil-cloth	Resins & Plastics	Other Drying Oils	Lubricants & Similar Oils	Fatty Acids	Other	Total Nonfood Products
1979–0[1]	1,353	150	1,503			3	11		10		6	1,208	74	1,312
1980–1[1]	1,336	155	1,491			4	11		15		5	1,206	94	1,334
1981–2[2]	1,190	137	1,327			3	16		17		4	1,096	48	1,185
1982–3[2]	1,557	151	1,708			4	30		25		4	1,042	64	1,151
1983–4[2]	1,293	217	1,510				33		—			1,096		1,228
1984–5[2]	1,321	113	1,434				20		16			994		1,087
1985–6[2]	1,354	126	1,480			13	17		16		12	1,055		1,143

[1] Preliminary. [2] Estimated. *Source: Agricultural Marketing Service, U.S.D.A.* T.669

U.S. Tall Oil Consumption in Inedible Products In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	97	114	113	125	111	118	95	104	111	116	113	104	1,321
1981	110	110	107	110	128	124	97	112	104	104	108	83	1,203
1982	95.4	107.4	121.8	105.2	96.8	95.6	84.7	95.8	88.3	94.4	84.3	66.9	1,136
1983	100.0	96.3	106.9	92.8	98.7	109.1	98.1	114.0	93.7	94.1	95.0	82.6	1,181
1984	100.8	100.7	105.6	97.8	104.2	113.6	117.2	105.2	111.2	100.6	95.7	85.2	1,238
1985	84.1	87.4	94.3	90.4	84.6	85.8	91.7	95.3	91.7	97.6	88.2	85.1	1,076
1986[1]	86.3	93.1	106.0	106.1	95.3	99.5	93.7	101.4	91.1	103.4	106.8	93.7	1,177
1987[1]	109.2	102.0	107.9	104.5	100.1	112.1	109.9	99.3	104.8	112.2			

[1] Preliminary. *Source: Statistical Reporting Service, U.S.D.A.* T.670

Tall Oil Production in the United States In Millions of Pounds

Crop Year		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Total
1983–4	Crude	107.9	105.4	93.4	99.5	116.3	125.6	111.7	117.8	109.0	105.1	106.1	95.4	1,293.2
	Refined	12.1	14.8	9.9	13.0	11.6	13.4	12.0	13.4	10.7	13.0	12.9	12.6	149.4
1984–5	Crude	112.8	110.7	109.2	95.2	104.0	121.4	116.4	108.4	112.1	117.1	107.8	105.8	1,320.9
	Refined	12.9	11.7	10.9	10.2	9.9	11.8	9.9	10.3	9.7	7.3	10.0	10.5	125.1
1985–6	Crude	115.5	103.5	167.6	120.2	113.8	126.6	124.0	111.7	108.4	107.7	107.9	111.8	1,415.4
	Refined	9.8	9.2	8.7	8.3	8.0	7.9	8.7	8.7	8.2	8.2	9.4	9.7	104.8
1986–7[1]	Crude	114.4	106.8	120.9	123.8	113.1	145.5	132.6	124.3	122.9	130.9	116.6	119.7	1,471.5
	Refined	9.1	7.8	8.2	9.0	8.9	9.2	10.4	10.4	8.4	10.5	9.7	9.6	111.2
1987–8[1]	Crude	123.0	116.3											
	Refined	9.2	9.0											

[1] Preliminary. *Source: Bureau of the Census* T.0578

Tall Oil Stocks in the United States In Millions of Pounds

Crop Year		Oct. 1	Nov. 1	Dec. 1	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1
1983–4	Crude	217.2	205.4	185.7	186.2	164.6	160.1	168.9	179.7	190.2	163.3	149.0	123.6
	Refined	19.9	18.8	18.1	17.4	16.3	15.9	15.5	12.9	11.7	9.2	11.1	11.1
1984–5	Crude	112.8	101.9	103.0	109.5	108.7	117.0	117.3	126.4	113.8	121.1	141.8	131.4
	Refined	9.9	10.9	12.6	13.0	13.6	17.7	18.3	21.9	22.9	23.8	25.9	29.4
1985–6	Crude	125.9	125.1	158.7	167.6	154.1	160.7	182.7	183.4	181.1	175.5	184.1	169.7
	Refined	19.7	19.7	19.9	19.0	21.2	19.3	25.3	29.2	27.6	26.5	25.3	30.1
1986–7[1]	Crude	177.8	164.9	173.9	196.1	185.6	198.9	211.6	204.4	209.7	194.5	171.6	161.2
	Refined	29.1	27.7	23.4	28.3	26.5	27.2	35.8	29.3	30.9	31.8	33.4	33.7
1987[1]	Crude	160.1	144.0	149.1									
	Refined	33.2	34.5	35.3									

[1] Preliminary. *Source: Bureau of the Census* T.0578A

Tallow and Greases

Tallow is primarily a by-product of the commercial beef industry, and in the U.S. must be federally inspected to be termed "edible." Used in some processed foods and as a frying fat in the fast-food segment of the restaurant industry, it competes with soybean oil and other oils on a price basis. Inedible tallow and grease are major raw materials for fatty acids, and are used extensively in animal feeds and lubricants. It is difficult to determine to what extent tallow is used for edible purposes world-wide. The bulk of U.S. inedible tallow exports goes to developing countries.

World tallow and grease production for the 1986/87 season was estimated by *Oil World* at 6.37 million tonnes, about 2 percent below the previous season, and the smallest output since 1982/83. The decline was due, in part, to a sharp reduction in U.S. tallow production.

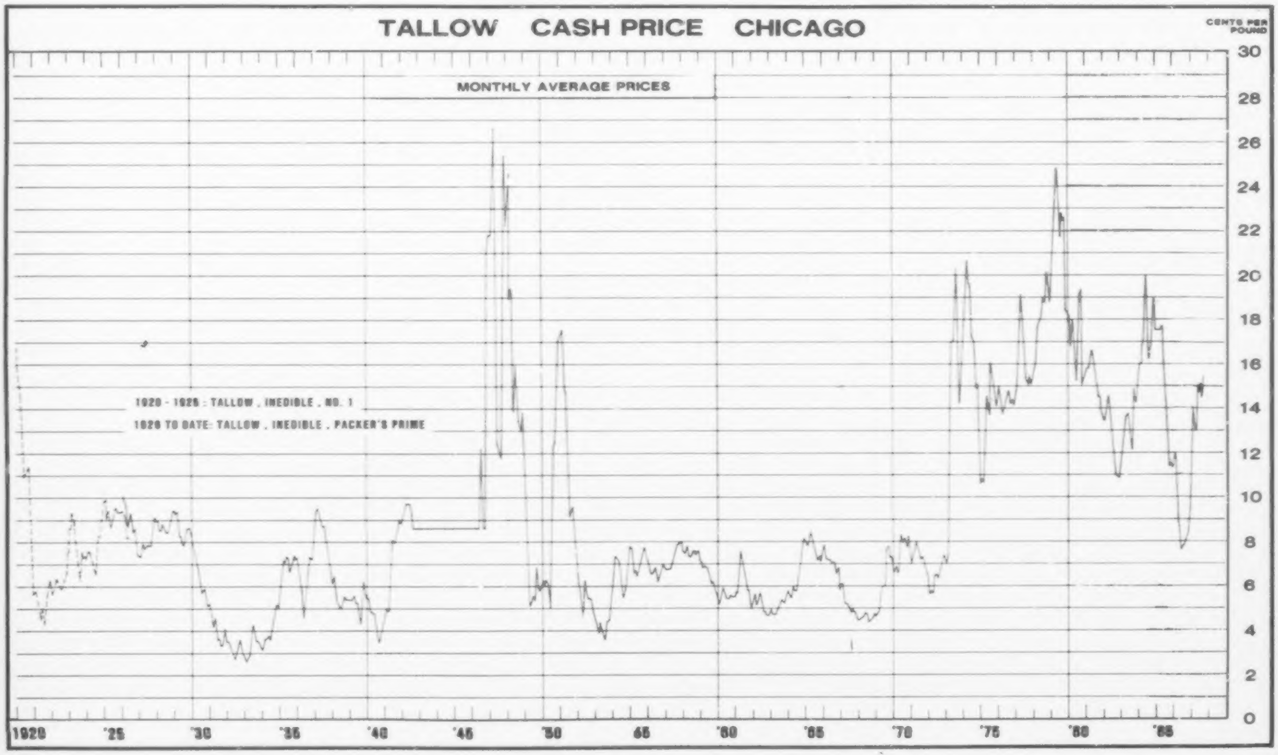
The U.S. is the world's largest producer of edible and inedible tallow and accounts for about 50 percent of annual world output. Total domestic tallow and grease production in 1986/87 was forecast at 3.08 million tonnes, down 6 percent from the previous season. Much of this drop was attributed to reductions in cattle and hog slaughter. The U.S. cattle herd has been significantly reduced since 1981. U.S. beef production was expected to continue to decline at a 4 percent annual rate through calendar year 1988. U.S. hog production fell by 5 percent from 1985 to 1986, but was expected to increase by 2 percent in 1987 and 9 percent in 1988.

Domestic consumption of inedible and edible tallow for 1986/87 was estimated at 2.015 million tonnes, down 3 percent from the previous season. U.S. imports were expected to rise 10 percent, while exports were forecast to decline 14 percent.

In 1987, the Netherlands, Pakistan, and Spain reduced their imports of U.S. tallow by 47 percent, 40 percent, and 33 percent, respectively. These declines were mostly due to substitution. Pakistan increased its imports of palm oil from Malaysia because of attractive prices, while Spain, and, to a lesser extent, the Netherlands increased consumption of butter produced in the European Community.

Egypt, China and Mexico, however, boosted their imports of U.S. tallow by 160 percent, 39 percent, and 12 percent, respectively. Egypt's large increase offset two years of sharp declines due to a foreign exchange shortage; the country's imports are for its soap industry. The rise in China's imports was due to improved economic conditions and to marketing efforts by a U.S. tallow trade association.

According to USDA, inedible tallow prices (packers, prime Chicago) averaged 11.53 cents/lb. for most of the 1986/87 season, up from 9.70 cents in 1985/86.



TALLOW AND GREASES

World Production of Tallow and Greases (Edible and Inedible) In Thousands of Metric Tons

Year	Argentina	Australia	Brazil	Canada	Colombia	USSR	France	W. Germany	Italy	Japan	Mexico	Netherlands	New Zealand	United Kingdom	United States	Eastern Europe	World Total
1979	331	334	200	203	26	345	243	221	100		32	90	112	188	3,058	137	6,171
1980	308	309	200	204	29	340	220	235	105		33	94	118	235	3,157	132	6,273
1981	313	309	210	213	33	355	205	235	106	193	52	96	125	218	3,290	140	6,357
1982	276	316	220	220	32	350	188	232	96	196	47	91	125	218	3,228	138	6,241
1983	263	319	230	215	28	355	192	235	94	197	64	89	138	222	3,351	132	6,369
1984	273	300	200	214	30	360	190	250	110	198	69	98	131	238	3,275	136	6,323
1985	293	305	220	212	30	370	180	250	115	212	69	103	156	230	3,373	142	6,522
1986[1]	305	328	200	218	30	375	175	256	115	215	58	119	126	220	3,206	155	6,398
1987[2]	284	348	240	208	30	380	182	257	116	220	43	122	132	230	3,159	146	6,396

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.672

Salient Statistics of Tallow and Greases (Inedible) in the United States In Millions of Pounds

	Supply				Exports & Shipments	Utilization in Nonfood Products						Wholesale Prices, ¢ Per Lb.		
													Inedible Chi.	
Year	Production	Imports	Stocks Jan. 1	Total		Soap	Feed	Fatty Acids	Lubricants & Oils	Other	Total[2]	Edible, (Loose) Chicago	No. 1	Bleachable Fancy
1979	5,836	—	347	6,183	2,795	663	1,239		1,215		3,117	26.2	18.8	
1980	5,916	—	390	6,306	3,254	666	1,246	813	69	177	2,979	21.6	14.3	
1981	6,124	0	413	6,537	3,134	520	1,323				2,985	30.3	15.3	
1982	6,026	0	451	6,477	3,035	545	1,418				2,898	N.A.	12.8	
1983	6,129	0	368	6,497	2,931	574	1,397				2,813	N.A.	13.5	
1984	5,881	0	376	6,257	2,735	623	1,346				2,941	N.A.	17.5	
1985[1]	5,814	0	368	6,182	2,737	535	1,361				2,780	20.1	14.3	
1986[4]			362										9.0	

[1] Preliminary. [2] Includes small amounts used in drying-oil products in some years. [4] Estimate. *Sources: Economic Research Service, U.S.D.A.; Bureau of Labor Statistics* T.673

Edible Tallow: Supply, Disappearance, and Price, U.S. In Million Pounds, Rendered Basis

	Supply			Disappearance						
Calendar year	Stocks Jan. 1	Production	Total	Domestic	Exports	Total	Direct use	Baking or Frying Fats	Per capita Lb	Price[1] ¢ Lb.
1979	55	905	960	853	50	903	87	713	.4	26.2
1980	57	1,043	1,101	957	88	1,047	242	648	1.1	21.6
1981	56	1,130	1,188	992	142	1,134	225	724	1.0	30.3
1982	54	1,110	1,163	1,030	75	1,106	303	679	1.3	N.A.
1983	59	1,260	1,319	1,166	107	1,273	480	632	2.0	N.A.
1984	46	1,340	1,386	1,295	54	1,349	395	821	1.7	28.74
1985	36	1,611	1,647	1,526	80	1,595	458	1,016	1.9	20.14
1986[2]	41	1,523	1,564	1,469	62	1,531	429	1,025	1.7	13.49

[1] Loose, average wholesale, Chicago. [2] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.673A

Average Wholesale Price of Tallow, Inedible, No. 1 Packers (Prime), C.A.F. Chicago In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1979	19.8	20.8	22.9	24.8	24.1	21.7	22.8	22.4	22.6	20.9	18.4	18.2	21.6
1980	18.1	16.7	17.5	18.0	16.8	15.2	16.8	19.0	19.4	17.5	20.4	19.0	17.9
1981	15.8	15.8	16.0	16.5	15.6	16.0	15.2	15.0	14.5	14.5	13.9	13.6	13.6
1982	13.4	13.4	14.1	14.4	14.5	14.3	13.6	12.0	11.4	11.0	11.0	10.8	12.8
1983	11.4	12.0	12.5	13.6	13.8	13.2	12.1	13.7	14.9	14.2	14.8	15.1	13.4
1984	16.0	16.0	16.8	17.0	19.1	20.0	17.1	16.2	16.9	17.9	19.0	17.5	17.5
1985	17.5	17.5	17.5	17.7	16.1	14.3	13.6	12.1	11.4	11.5	11.3	11.5	14.3
1986	12.0	11.8	9.4	8.9	8.7	7.6	7.8	7.8	8.1	8.4	8.5	9.5	9.0
1987	10.7	14.1	13.0	13.0	15.1	14.7	15.2	14.5	15.5				

Source: Economic Research Service, U.S.D.A. T.674

Tea

During the first half of 1987, tea ouput in the ten major producing countries rose about 7 percent from the same 1986 period. For the year, production was expected to approximate 1986's total of about 2.9 million tons. However, with abundant stocks in London, world prices were depressed. In January 1987, world prices averaged $0.90/lb., and by August, prices had slipped to about $0.72. A modest rebound was expected in late 1987 and into 1988.

China, Sri Lanka, and India produce over half of the world's tea. China's 1987 output was estimated at 480,000 tonnes, 4 percent more than the 1986 crop, according to USDA. China's 1987 spring and fall crops increased. China planned to expand output in 1988 to 510,000 tonnes, and to 600,000 tonnes by 1990. Planners counted on improved yields and policies favoring tea production, including: assistance with loans, fertilizer, fuel, and transportation, and more technical services for farmers.

India's 1987 crop was expected to match its 1985 record of 657,000 tonnes. The U.K. is India's largest customer, but India has been targeting new export markets, notably the U.S. In 1986, India exported more than 2.7 million pounds to the U.S.; that amount was surpassed in the first six months of 1987.

Sri Lanka's 1987 crop was hampered by a drought that cut output during the first six months to 112,000 tonnes from 116,000 a year earlier. The largest importers of Sri Lankan tea are Iraq, Iran, and Saudi Arabia. Kenya's production rose to almost 80,000 tonnes in the first half of 1987, versus 66,000 in the like 1986 period. A record harvest was expected for the full year. Kenya expects its tea harvest to near 300,000 tonnes a year before the end of the century.

The U.S. imported 107 million pounds of tea during the first half of 1987, down from 118 million in the same 1986 period. In the next several years, total world imports are expected to increase about 2.5 percent annually, and to rise 3.9 percent in developing countries.

World Tea Production, in Major Producing Countries In Thousands of Metric Tons

Year	Argentina	China	Sri Lanka (Ceylon)	India	Indonesia	Iran	Japan	Kenya	Malawi	Mozambique	Bangladesh	Taiwan	Turkey	Tanzania	USSR	World Total
1972	24.0	N.A.	213.5	456.0	49.8	22.0	94.8	53.3	20.7	18.7	23.8	26.2	46.5		71.3	1,197
1973	23.1	N.A.	211.3	472.0	54.5	23.0	101.0	56.6	23.6	18.8	27.6	28.6	43.2		74.8	1,236
1974	26.0	N.A.	204.0	492.1	51.7	25.0	95.2	53.4	23.3	17.6	32.2	24.2	42.8		80.8	1,245
1975	29.0	N.A.	213.7	487.1	56.8	23.0	105.4	56.7	26.2	13.1	29.0	26.1	55.6		86.3	1,284
1976	33.0	N.A.	196.6	511.8	61.1	22.0	100.1	62.0	28.3	13.8	33.3	24.8	59.5		92.0	1,316
1977	21.6	252.0	208.6	556.3	64.3	24.0	102.3	86.3	31.7	17.0	38.0	26.3	84.1		106.4	1,709
1978	26.3	268.0	199.0	563.8	73.2	23.0	104.7	93.4	31.7	18.1	38.0	25.9	86.5		111.2	1,755
1979	32.1	277.1	206.4	551.9	73.3	21.0	98.0	93.3	32.6	19.7	35.9	27.1	102.0		117.6	1,782
1980	40.0	304.0	191.4	569.6	98.7	20.0	102.3	89.9	29.9	22.3	40.0	24.5	95.9	17.1	129.8	1,857
1981	33.0	343.0	210.1	560.0	110.2	20.0	102.3	90.9	32.0	23.3	41.3	25.2	42.6	15.9	136.5	1,870
1982	40.0	397.0	187.8	560.7	91.7	25.0	98.5	96.0	38.5	25.8	40.9	24.1	68.0	16.2	139.8	1,939
1983	45.0	401.0	179.3	589.0	115.0	25.0	102.7	119.7	32.0	12.0	43.7	24.3	101.0	15.6	145.6	2,044
1984[1]	46.0	414.0	208.1	645.1	126.4	25.0	92.5	116.2	37.5	14.1	38.2	24.4	113.7	16.5	148.0	2,171
1985[2]	46.0	440.0	214.1	657.3	130.0	25.0	100.0	147.2	40.0	15.0	43.4	24.5	110.0	16.5	150.0	2,266

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.677

World Tea Exports from Producing Countries In Thousands of Metric Tons

Year	Sri Lanka (Ceylon)	China	India	Indonesia	Japan	Malaysia	Bangladesh	Taiwan	Total Asia	Kenya	Mozambique	Malawi	Total Africa	Argentina	Grand Total
1972	190.1	42.0	209.8	38.5	1.9	.8	13.2	21.3	535.8	47.4	18.4	19.9	129.3	18.9	688.7
1973	205.5	50.2	188.2	35.6	2.2	.6	20.3	21.1	547.0	51.5	17.9	22.1	137.4	18.0	709.0
1974	185.1	63.6	205.9	50.2	1.8	.6	21.2	17.2	563.6	49.6	17.2	23.8	134.3	24.1	728.3
1975	212.4	61.3	219.4	46.0	2.2	.5	24.1	20.1	592.3	52.6	12.2	24.2	132.6	17.4	747.5
1976	199.7	61.2	237.3	47.5	3.2	.5	30.7	21.1	608.7	59.3	12.9	29.6	142.2	25.1	782.7
1977	185.5	81.8	229.6	51.3	3.5	.5	26.0	20.8	611.1	70.2	12.9	29.9	158.6	26.9	803.1
1978	192.6	86.9	176.1	56.2	3.4	.6	30.9	20.4	576.7	85.0	16.7	30.6	178.1	31.0	795.1
1979	187.5	106.8	199.6	53.6	3.1	.6	31.9	19.3	616.0	94.0	18.2	31.0	180.5	29.6	834.9
1980	184.5	108.0	224.0	74.2	2.7	.6	31.0	18.2	657.1	74.8	18.0	31.3	156.4	33.5	856.1
1981	182.8	92.0	241.2	71.3	2.7	.2	29.2	15.9	648.5	75.6	18.0	31.5	159.6	25.8	842.8
1982	181.1	115.8	189.9	63.7	2.5	.3	34.4	10.1	605.6	80.4	18.0	37.1	172.2	33.1	820.6
1983	157.9	136.9	208.5	68.6	2.1	.3	30.0	11.6	625.3	100.6	13.3	36.1	191.5	44.7	870.1
1984[1]	204.2	151.3	217.0	85.7	2.8	.3	23.1	11.9	705.9	91.3	7.7	37.1	179.6	43.2	938.6

[1] Preliminary. *Source: Foreign Agricultural Service, U.S.D.A.* T.678

Salient Statistics of Tea in the United States In Thousands of Metric Tons

	U.S. Imports from:													Sales by U.S. Retail Stores				
Year	Brazil	Argentina	Sri Lanka (Ceylon)	China	India	Indonesia	Japan	Kenya[2]	Mozambique	Netherlands	Malawi	Taiwan	Total	Tea Bags	Loose Tea	Instant Tea	Instant Mixes	Total Quantity
1973		1.1	19.7	.6	8.2	13.3	2.1	8.4	3.1	5.1	2.7	3.2	78.9	30.8	5.1	19.4	8.2	63.5
1974		1.8	19.6	1.2	7.5	13.3	1.9	7.9	3.1	6.4	3.2	3.3	80.9	31.5	4.6	18.7	8.7	63.5
1975		1.8	18.3	2.0	6.8	12.9	1.7	8.4	2.7	2.4	2.2	4.0	72.3	31.6	4.1	19.8	8.0	63.5
1976		2.1	21.1	3.0	8.0	11.6	3.2	10.7	2.0	1.3	4.1	4.8	82.2	33.8	4.2	19.6	8.5	66.2
1977		4.9	16.6	4.2	12.3	14.7	3.4	9.5	2.3	3.0	5.6	5.7	92.1	36.2	5.2	20.0	10.7	72.1
1978	2.0	6.7	14.0	2.9	1.7	10.7	3.2	8.2	1.4	4.1	4.2	3.0	68.8	35.5	4.4	18.7	11.7	70.3
1979	3.5	7.0	14.7	6.5	5.9	11.2	2.9	9.4	2.4	4.7	2.5	2.3	79.2	36.1	4.1	18.0	11.7	69.9
1980	2.8	10.3	12.2	8.0	4.2	13.9	2.5	6.8	5.0	5.9	2.1	3.1	83.8	37.9	3.7	17.1	12.1	70.8
1981	3.5	10.0	13.0	7.1	4.7	14.7	2.5	5.5	4.2	7.7	2.4	4.2	86.3	39.7	3.3	15.9	12.0	70.8
1982	3.5	12.2	12.4	6.9	2.9	14.0	2.4	6.9	4.0	6.1	1.4	3.8	82.8	40.6	3.0	14.9	11.7	70.3
1983	3.9	15.1	8.1	6.4	2.9	14.4	1.8	4.5	3.5	4.7	1.3	3.5	77.3	41.9	2.7	14.9	13.1	72.6
1984	3.6	18.1	9.4	9.6	3.8	15.5	2.1	3.9	2.2	4.8	.9	6.3	88.3	40.7	2.3	13.3	12.2	64.5
1985[1]	4.3	15.2	9.8	10.9	2.9	12.8	2.1	4.2	.7	4.2	.9	2.2	79.2	41.0	2.1	12.6	11.4	67.1

[1] Preliminary. *Sources: Statistical Reporting Service, U.S.D.A.; Bureau of Census*

T.675

United States Imports of Tea In Thousands of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1971	13,226	12,360	15,073	18,078	15,128	16,529	20,150	25,141	19,427	4,631	3,828	11,862	175,432
1972	12,914	16,907	10,276	10,165	12,885	16,563	10,835	11,581	12,830	14,348	11,460	10,731	151,495
1973	15,481	14,295	15,399	14,107	17,423	12,425	13,660	12,614	12,527	16,878	16,506	11,997	173,314
1974	11,675	14,974	16,583	17,177	18,122	17,489	21,788	16,432	13,954	10,460	7,735	11,844	178,326
1975	14,297	12,200	15,486	13,648	14,694	12,170	9,915	11,276	12,404	17,594	13,940	11,843	159,287
1976	11,842	12,309	15,779	15,805	13,053	13,893	14,259	15,051	19,224	15,683	16,133	18,273	181,304
1977	16,059	15,064	22,389	23,302	27,345	22,335	22,252	15,932	9,994	9,702	7,213	10,924	203,012
1978	9,023	12,791	18,648	15,450	17,523	8,286	13,141	13,788	9,390	12,502	8,877	12,332	151,751
1979	14,797	10,568	15,584	13,822	13,556	14,352	13,361	14,809	15,841	16,992	15,432	15,578	174,690
1980	18,749	17,562	17,456	18,501	15,871	16,460	14,099	11,883	11,870	14,271	12,126	15,936	184,786
1981	12,891	18,354	14,696	19,220	18,990	17,736	14,586	19,128	13,205	15,855	13,473	12,121	190,254
1982	15,055	15,464	13,787	13,176	16,518	14,309	14,286	15,598	17,425	16,207	18,222	12,567	182,613
1983	13,748	15,092	14,170	15,799	16,018	10,931	12,159	11,747	15,025	16,531	13,600	15,631	170,451
1984	15,599	15,956	20,235	18,031	17,546	12,803	22,287	12,023	14,169	20,946	12,386	12,585	194,565
1985	16,238	13,856	15,491	13,342	15,337	15,054	15,586	12,745	14,942	14,878	13,656	13,493	174,617
1986	16,923	13,219	21,719	19,002	15,747	14,970	19,732	14,626	18,110	14,864	14,965	14,086	197,963
1987	15,206	14,495	19,830	14,634	16,835	12,421	12,838	13,538	11,207	15,569			

Source: Department of Commerce

T.679

London Auction Tea Prices In U.S. Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	102.4	105.7	102.4	100.4	104.2	106.8	100.9	102.5	95.1	92.4	101.3	98.1	101.0
1981	98.6	101.2	100.5	97.9	94.7	90.4	84.6	80.0	81.7	87.4	91.3	91.6	91.7
1982	92.0	94.2	88.5	84.7	84.8	83.3	79.9	80.8	86.7	91.4	89.8	96.1	87.7
1983	98.5	93.1	89.8	92.1	91.0	85.2	86.6	90.6	99.0	117.4	158.8	163.8	105.5
1984	194.2	169.0	166.7	160.4	161.3	144.8	130.3	133.2	154.1	164.2	155.2	147.9	156.8
1985	143.1	127.3	110.4	98.6	75.2	74.6	71.5	72.2	73.3	78.7	80.2	75.3	90.0
1986	82.1	85.7	91.5	91.3	85.9	79.7	79.8	86.5	91.6	94.1	93.6	88.6	87.5
1987	89.7	83.6	83.2	67.9	65.4	60.8	69.5	72.3					

Source: International Tea Committee

T.679a

Tin

The U.S. mines only a negligible amount of tin, and in 1987 it imported tin from 25 countries. In the first six months (Jan.-Jun.) of 1987, the U.S. imported 21,277 tonnes, for an implied annual 42,554 tonnes, a potential gain of 19 percent over 1986's total of 35,788 tonnes. In the first six months, imports were running at a 15-percent better pace than in the same 1986 period, according to the U.S. Bureau of Mines.

Tin was an unpleasant word in parts of the metals trade and the banking business in 1985, with the failure of the International Tin Council (ITC) to honor its agreements with many London Metal Exchange (LME) member merchant firms. The exchange halted trading in tin futures, and eventually delisted tin from the trading board.

A financial tarpit developed, as some clearing firms were unable to meet their financial obligations, causing the tradition-bound exchange to revamp its clearing function. Previous to the tin collapse, the exchange worked on a name basis, with each firm responsible for the paper it held. After the collapse, when many members' finances were in question, the exchange was finally pushed into adopting a clearing house function, which in effect divided responsibility among all the member firms.

LME member firms and banks that loaned funds to the ITC brought lawsuits against the LME and the ITC. These suits were an attempt to recover losses, and are still pending.

Tin is traded differently than other metals. An organized cartel, the Association of Tin Producing Countries (ATPC), operates to support prices. It currently manages a market withholding scheme designed to work down a large supply overhang. In 1985, the year of the ITC default, the tin stockpile totaled 104,000 tonnes, according to ATPC statistics. With the quota scheme in place, the surplus has been reduced to less than 50,000 tonnes, ATPC officials assert.

The ATPC has seven members, Malaysia, Indonesia, Thailand, Bolivia, Australia, Zaire and Nigeria. While China and Brazil are also major producers, they are not members of ATPC. However, both nations send observers to the ATPC meetings and voluntarily cooperate on the quota scheme. Between them, ATPC and the other two nations control more than 90 percent of the world's tin production.

Brazil was the largest supplier of tin to the U.S. in 1986, with 9,456 tonnes; for the first six months of 1987 (Jan.-Jun.), it supplied a total of 6,759 tonnes, well ahead of its 1986 pace. Malaysia supplied 8,230 tonnes, the second largest amount, in 1986. But its shipments were below that level in 1987, at only 2,839 tonnes through May. U.S. imports from China, back in the pack in 1986 at only 2,995 tonnes, were ahead of that pace at 3,461 tonnes in the first six months of 1987 (making it the third largest supplier to the U.S.).

Tin consumption in the U.S. remained on trend in 1987. Cumulative primary tin usage in the first six months of 1987 (Jan.-Jun.) was 19,100 tonnes, compared with 19,400 tonnes for the same period in 1986. Total 1986 consumption was 35,548 tonnes. Secondary tin consumption in the same 1987 period (Jan.-Jun.) was 8,400 tonnes, compared to full-year 1986 totals of 10,975 tonnes.

World mine production of tin is estimated to have been 167,000 tonnes in 1986. The largest producers are Malaysia, Brazil, and China, which together account for almost 50 percent of the world's output. World resources are primarily located in South East Asia, Australia, Bolivia, Brazil, China and the USSR. According to the U.S. Bureau of Mines, there are sufficient resources available to sustain present rates of production well into the next century.

In the U.S., tin's major uses are: the electrical industry, 20 percent; containers, 18 percent; construction, 15 percent; transportation, 14 percent; and miscellaneous, 33 percent.

World Mine Production of Tin (Content of Ore) In Thousands of Metric Tons

Year	Australia	Bolivia[1]	Brazil	Burma	China[3]	Indonesia	Japan	Malaysia	Nigeria	Rwanda	South Africa	Thailand	United Kingdom	USSR	Zaire (Congo)	World Total
1983	9.3	25.3	13.3	1.6	15.0	26.6	.6	41.4	1.6	1.1	2.7	19.9	4.0	22.0	2.2	196.6
1984	7.9	19.9	20.0	2.0	15.0	23.2	.5	41.3	1.7	1.1	2.3	21.9	5.2	23.0	2.7	198.4
1985[2]	6.4	16.1	26.5	1.8	15.0	21.8	.5	36.9	1.0	.8	2.2	16.9	5.2	23.0	3.1	188.7
1986[3]	8.6	11.9	27.4	1.5	15.0	22.1	.5	28.1	1.1	—	2.1	16.8	4.6	23.5	2.8	180.2

[1] Exports. [2] Preliminary. [3] Estimate. *Source: Bureau of Mines* T.682

World Smelter Production of Tin In Thousands of Metric Tons

Year	Australia	Thailand	Bolivia	Brazil	China	Zaire (Congo)	West Germany	Indonesia	Japan	Malaysia	Nigeria	Portugal	South Africa	United Kingdom	United States	USSR	Total
1983	2.9	18.5	14.2	13.0	15.0	.2	.4	28.4	1.3	53.3	1.2	.4	2.7	6.5	2.5	24.0	200.1
1984	2.9	19.7	15.8	18.9	15.0	.2	.4	22.5	1.4	46.9	1.4	.4	1.6	7.1	4.0	25.0	201.1
1985[2]	2.7	18.0	12.9	24.7	15.0	.1	.4	20.9	1.4	45.5	1.0	.4	1.4	7.5	3.0	25.0	196.6
1986[3]	1.3	18.5	8.5	25.5	15.0	.1	.4	22.0	1.3	44.0	1.0	.2	1.9	7.0	3.2	26.0	189.9

[1] Imports into the U.S. of tin concentrates (tin content). [2] Preliminary. [3] Estimate. *Source: Bureau of Mines* T.683

Tin Foreign Trade of the United States In Metric[5] Tons

		Imports (For Consumption)														
		Concentrates[3] (Ore)			Bars, Blocks, Pigs, etc.[4] (Metal)											
Year	Exports (Metal[2])	Total All Ore	Bolivia	Peru	Total All Metal	Australia	Belgium	Bolivia	Brazil	China	Indonesia	Malaysia	Nigeria	Singapore	Thailand	United Kingdom
1977	5,480	6,724	6,667	—	47,774	—	—	3,358	2,380	381	5,294	27,084	2	207	7,780	513
1978	4,692	3,873	3,541	—	46,776	—	155	5,768	1,810	1,571	5,664	23,448	—	230	6,865	468
1979	569	4,529	3,745	—	48,355	—	100	5,387	933	185	5,429	23,448	—	1,070	10,440	550
1980	595	840	528	—	45,982	145	190	5,597	2,031	858	6,477	15,548	770	864	12,414	416
1981	2,361	232	—	232	45,874	552	—	8,277	1,129	2,032	7,096	13,163	520	656	11,967	46
1982	5,769	1,961	192	1,416	27,939	334	10	4,340	2,409	2,632	5,744	2,364	124	600	9,116	55
1983	1,340	969	257	341	34,048	390	45	5,739	5,604	1,938	6,004	4,704	265	1,029	7,436	18
1984	1,429	3,272	271	2,502	41,224	288	137	5,438	10,220	1,640	4,985	6,622	60	781	9,531	583
1985	1,478	1,616	22	1,506	33,830	266	—	1,815	11,021	4,513	4,586	379	—	1,886	6,373	48
1986[1]	1,547	3,936	259	3,676	35,768	94	—	4,893	9,456	2,955	4,149	6,230	—	691	1,901	730
1987[5]	1,300	3,200	850	2,500	38,000	850	—	4,000	13,000	8,000	3,500	5,000	90	900	1,500	600

[1] Preliminary. [2] Ingots, Pigs & Bars. Excludes re-exports from 1979. [3] Tin content. [4] Also grain, or granulated. [5] Estimate.
Source: Department of Commerce

T.684

United States Tin (Pig) Consumption (Total) In Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1977	5,600	5,500	6,800	5,800	5,800	6,000	5,200	5,800	5,900	5,400	5,000	5,100	60,732
1978	5,400	5,000	5,500	5,200	5,700	5,400	4,600	5,200	5,200	5,300	5,400	4,900	61,531
1979	5,400	5,500	6,400	5,400	5,400	5,300	4,900	4,900	5,000	5,500	5,000	4,600	62,465
1980	5,500	5,300	5,750	5,300	4,600	4,100	3,700	3,900	4,150	4,300	4,050	3,750	56,362
1981	4,300	4,400	4,100	4,600	4,400	4,350	3,900	4,200	3,950	3,900	3,400	2,950	54,373
1982	3,400	3,300	3,750	5,100	5,000	5,100	4,900	4,700	4,700	4,600	4,500	4,400	53,450
1983	4,400	4,700	4,900	4,700	4,700	4,800	4,300	4,600	4,700	4,800	4,400	4,800	55,800
1984[1]	4,600	4,300	5,300	3,900	4,500	4,400	4,100	4,400	4,100	4,000	3,300	3,500	50,400
1985[1]	4,000	3,900	4,600	4,500	4,600	4,400	4,200	4,400	4,300	4,500	4,200	4,000	51,600
1986[1]	4,300	4,000	4,200	4,500	4,400	4,400	4,100	4,100	4,000	4,300	3,900	3,900	50,100
1987[1]	4,100	3,900	4,200	4,700	4,300	4,200	4,400	4,400	4,000				

[1] Preliminary. *Source: Bureau of Mines.*

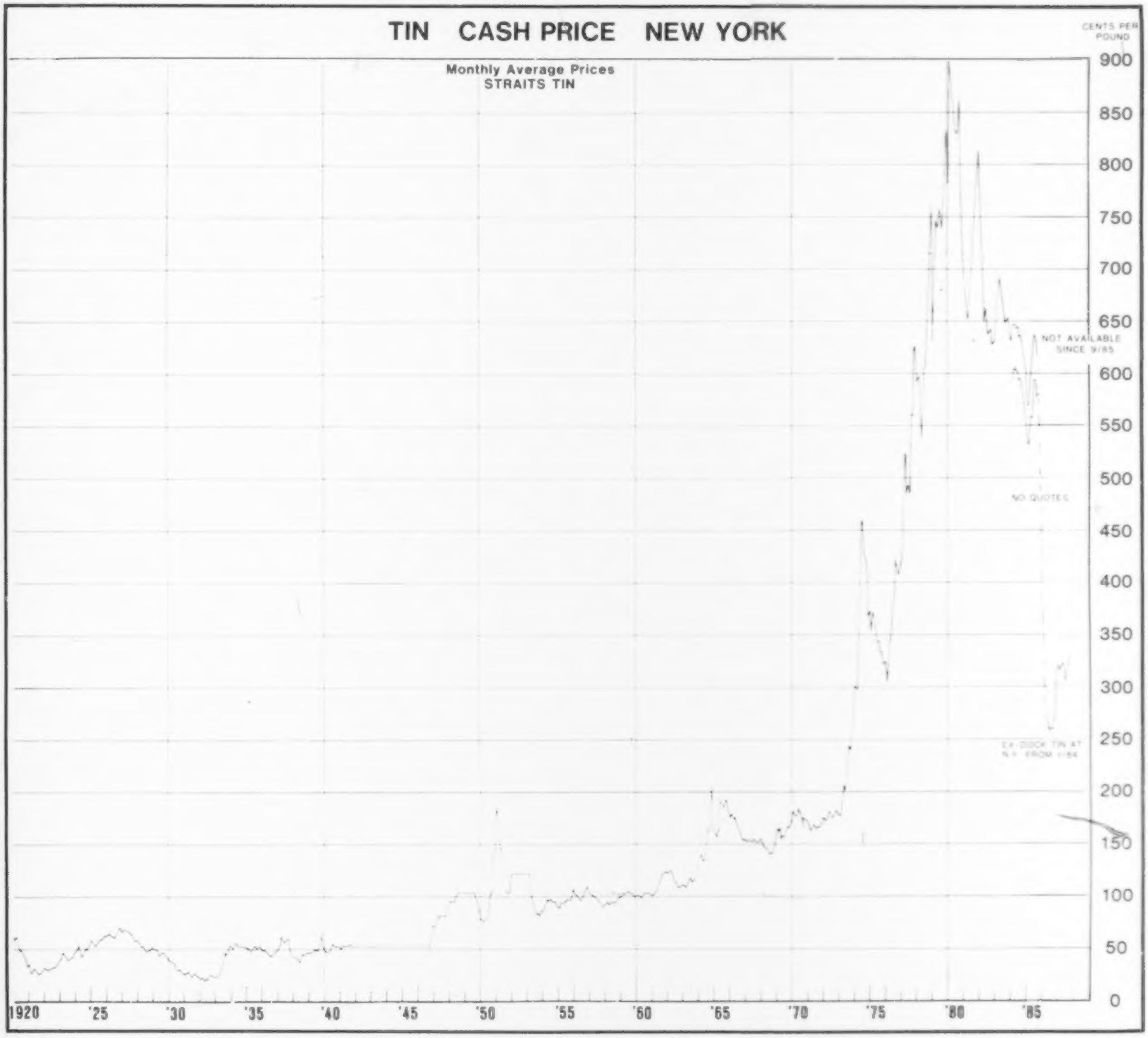
T.681

United States Tin Stocks (Pig—Industrial) In Metric Tons

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1977	7,282	8,032	7,883	5,874	6,157	5,644	4,720	6,305	5,557	5,378	9,124	7,272
1978	8,441	7,626	6,628	6,291	7,785	8,139	7,846	7,817	7,260	5,774	4 975	5,666
1979	5,040	4,594	4,254	5,891	6,097	5,938	6,317	6,270	6,096	5,058	4,901	4,244
1980	4,238	7,720	6,882	7,527	5,443	7,263	6,592	6,544	6,051	5,180	5,208	5,086
1981	5,504	5,968	5,745	5,229	5,725	5,978	6,227	6,465	5,663	5,710	5,325	5,563
1982	5,988	3,872	3,490	3,829	5,222	4,953	4,653	3,888	2,910	2,940	2,970	3,437
1983	3,152	4,609	3,513	3,815	4,026	3,527	3,634	3,931	4,091	3,604	3,074	3,180
1984[1]	3,020	2,968	2,268	2,840	2,646	3,119	2,795	2,688	2,837	2,495	2,512	2,326
1985[1]	2,592	2,766	2,283	2,407	2,228	2,853	3,042	2,762	2,663	2,985	4,121	4,913
1986[1]	5,665	5,310	4,692	3,097	4,127	3,987	4,032	4,166	4,246	3,497	3,554	4,681
1987[1]	4,802	5,232	6,394	6,321	7,263	8,087	6,663	4,288	5,373	5,358		

[1] Preliminary. *Source: Bureau of Mines*

T.680



TIN CASH PRICE NEW YORK

Monthly Average Prices
STRAITS TIN

Average Price of Ex–Dock Tin in New York[1] In Cents per Pound

Year	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept	Oct	Nov	Dec.	Average
1976	312.39	326.00	349.07	358.80	377.00	390.30	424.27	411.27	405.40	406.77	414.84	423.25	383.34
1977	470.54	514.16	522.97	485.28	491.93	482.15	518.71	559.51	558.47	619.25	626.16	613.36	538.76
1978	591.19	595.93	557.48	537.85	570.58	600.95	606.21	641.80	679.66	739.69	758.84	695.86	631.34
1979	684.56	724.57	746.14	740.06	745.18	760.14	712.31	739.93	762.03	785.54	801.23	830.88	756.87
1980	836.46	866.39	900.23	872.21	861.84	845.19	836.95	834.61	861.92	832.92	788.67	751.36	840.73
1981	739.94	705.76	691.70	677.38	652.07	652.77	680.22	746.06	777.36	798.70	813.00	801.59	728.05
1982	787.41	749.93	669.51	649.58	662.35	643.00	638.00	636.33	644.33	627.94	627.93	630.18	663.88
1983	648.90	653.89	669.18	692.29	683.36	670.54	663.13	653.10	649.31	650.65	653.02	636.71	660.34
1984[1]	590.60	592.10	603.40	605.10	601.70	602.20	593.50	594.70	590.20	578.60	574.40	566.10	591.05
1985	542.10	532.00	533.80	559.10	557.70	576.30	594.90	593.80	578.60	580.50	N.Q.	N.Q.	564.88
1986	N.Q.	N.Q.	350.64	274.98	265.04	260.28	261.51	261.26	260.69	267.48	292.84	308.26	280.30
1987	321.56	320.39	317.66	320.98	323.60	316.96	307.59	314.63	321.86	324.81	332.21	327.65	320.83

[1] Data prior to 1984 are for Straits (Allover Price). *Source: American Metal Market* T.685

Secondary Tin Recovered in the United States In Metric Tons

	Tin Recovered at Detinning Plants							Tin Recovered by Form of Recovery								
		Tin Recovered In the Form of														
Year	Tin-plate Scrap Treated (Ths. Tons)	Metal	Compounds[2]	Total	Weight of Tin Compounds Produced	Avg. Quantity of Tin Recov. Per Ton of Tin-Scrap (Kilog.)	Avg. Delivered Cost of Tinplate Scrap $ per Metric Ton	Tin Metal	Bronze & Brass	Solder	Type Metal	Babbitt	Anti-Monial Lead	Chemical Compounds	Misc.[3]	Grand Total
1976	685.5	1,195	424	1,619	1,348	2.36		1,467	8,319	4,513	668	495	548	424	12	16,446
1977	667.4	1,376	365	1,741	1,516	2.61		1,668	10,397	4,094	708	694	565	365	12	18,503
1978	714.9	1,324	463	1,787	1,803	2.50	60.04	1,565	12,419	4,363	1,038	521	712	463	19	21,100
1979	841.4	1,536	433	1,969	1,256	2.34	90.73	1,767	12,090	5,282	584	441	867	433	29	21,493
1980	766.9	1,457	321	1,778	1,533	2.32	89.38	1,703	10,402	4,423	525	378	856	321	30	18,638
1981	668.0	1,328	265	1,593	1,220	2.38	102.42	1,587	8,894	3,035	576	261	791	265	29	15,438
1982	464.6	810	447	1,257	1,754	2.37	56.16	1,067	6,971	2,723	222	237	1,015	447	101	12,783
1983	486.5	928	182	1,110	1,284	1.98	60.60	1,180	8,517	3,072	172	185	803	182	94	14,205
1984	492.8	824	301	1,125	1,498	2.24	68.01	1,107	9,146	3,653	142	123	894	301	51	15,417
1985	460.1	1,302	186	1,488	338	3.23	53.69	1,302	8,045	3,565	122	88	791	186	10	14,109
1986[1]	499.7	1,134	N.A.	1,134	N.A.	2.27	44.76	1,134	7,996	3,676	197	66	891	N.A.	17	13,977

[1] Preliminary. [2] Tin content. [3] Includes foil, cable lead & terne metal. *Source: Bureau of Mines*

T.687

U.S. Consumption of Primary and Secondary Tin In Metric Tons

			Net Receipts							
Year	Net Import Reliance as a % of Apparent Consumption	Industry Stocks Jan. 1[2]	Primary	Secondary	Scrap	Total	Available Supply	Stocks Dec. 31 (Total Available Less Total Processed)	Total Processed	Consumed in Mfg. Pdt's.
1976	85	19,510	49,995	2,019	10,189	62,203	81,713		64,819	62,928
1977	82	16,894	48,215	4,025	10,604	62,844	79,738		62,880	60,732
1978	79	16,858	46,821	2,541	10,499	59,861	76,719		63,135	61,531
1979	80	13,584	50,126	2,636	10,659	63,421	77,005		64,067	62,465
1980	79	7,075	43,545	2,461	7,709	53,715	60,790	3,593	57,197	56,362
1981	77	8,835	41,162	5,692	8,050	54,904	63,739	8,640	55,099	54,373
1982	68	8,717	35,843	6,507	7,830	50,180	58,897	12,328	46,569	46,295
1983	73	7,549	36,494	5,412	7,435	49,341	56,890	11,098	45,792	45,547
1984	74	7,740	39,388	6,096	7,323	52,807	60,547	10,788	49,759	49,441
1985	72	8,130	38,939	8,904	7,909	55,752	63,882	13,901	49,981	49,767
1986[1]	77	9,438	35,906	11,636	7,125	54,667	64,105	20,273	43,832	43,523

[1] Preliminary. [2] Includes tin in transit in the U.S. *Source: Bureau of Mines*

T.686

Consumption of Tin in the United States by Finished Products In Metric Tons of Contained Tin

														Total	
Year	Alloys	Tin-plate[2]	Solder	Babbitt	Bronze & Brass	Collap. Tubes & Foil	Tinning	Chemicals[3]	Tin Powder	Type Metal	Bar Tin & Anodes	White Metal	Other	Primary	Secondary
1976		20,766	17,728	2,423	7,656	694	2,308	5,621	1,208	216	758	2,347		51,767	11,161
1977		18,539	17,315	2,093	8,606	787	2,323	5,727	1,287	202	578	1,655		47,596	13,136
1978		17,280	17,770	2,346	9,048	673	2,431	4,557	1,360	171	424	1,484		48,403	13,128
1979	2,428	17,929	18,022	2,243	8,690	686	2,584	4,797	1,435	140	567	1,258	1,686	49,496	12,969
1980	134	16,346	15,618	2,380	7,478	526	2,577	N.A.	1,109	N.A.	486	914	8,794	44,342	12,020
1981	2,435	13,306	15,799	3,844	7,041	561	2,491	4,417	983	52	455	1,201	1,788	40,229	14,144
1982	N.A.	11,134	13,142	1,915	4,400	N.A.	1,887	N.A.	906	N.A.	509	1,177	11,225	33,019	13,276
1983	N.A.	9,462	14,120	2,881	4,583	N.A.	1,759	N.A.	793	N.A.	654	937	10,358	34,301	11,246
1984	N.A.	8,825	17,249	2,684	4,998	N.A.	1,748	N.A.	1,057	N.A.	526	958	11,396	37,819	11,622
1985	N.A.	9,321	18,621	1,488	4,330	N.A.	1,511	N.A.	976	7	466	937	12,110	37,187	12,580
1986[1]	N.A.	8,660	15,756	1,347	3,503	N.A.	1,422	N.A.	1,002	N.A.	480	1,134	10,219	32,548	10,975
1987[4]														40,000	12,000

[1] Preliminary. [2] Includes small quantity of secondary pig tin & tin acquired in chemicals. [3] Including tin oxide. [4] Estimate.
Source: Bureau of Mines

T.688

Titanium

Titanium, which has long been identified with the aerospace industry, wasn't a high flyer in 1987 in terms of price activity. Generally higher consumption was seen in titanium metal (with the exception of titanium sponge) and titanium dioxide pigment for paints, but prices were flat and showed no increases over 1986 levels.

The U.S. produces very little titanium metal in relation to the amount it uses, and relies heavily on imports to fulfill domestic needs. For the first nine months of 1987, domestic production of titanium sponge was 14,137 short tons, for an implied full-year rate of 18,849 tons, reflecting an eight-percent gain over 1986's 17,402 tons.

Production of titanium ingot for the first nine months of 1987 was 23,375 tons, for an implied annual 31,166 tons, down 11 percent from 1986's full-year total.

Approximately 65 percent of titanium metal consumed in the U.S. is used in jet engines, airframes, and space and missile applications. About 20 percent is used in the chemical processing industry, power generation, and in marine and military equipment applications. Another 17 percent is used in steel and other alloys.

Consumption of sponge for the first nine months of 1987 totaled 14,845 tons, compared with full-year 1986 consumption of 19,489 tons. Scrap consumption, an important part of total metal use, was 13,934 tons for the same period, compared with 16,487 for all of 1986. And ingot consumption was 27,156 tons for the review period, in a pace that was ahead of 1986's full-year total of 33,801 tons. Mill products in the nine months accounted for 16,642 tons, compared with 1986's 20,842 tons; mill castings accounted for 335 tons, versus a 1986 full-year total of 454.

Titanium dioxide is used in paints, varnishes, and lacquers, and is produced in five plants across the country. For the first eight months of 1987, total production was 633,261 tons, compared with full-year 1986 production of 917,305 tons. Imports totaled 127,970 tons for the same period, compared with full-year 1986 imports of 202,674 tons.

The U.S. imports titanium concentrates from ten countries, with imports of Australian ilmenite totaling 229,696 tons for the period Jan.-Aug. 1987, compared with full-year 1986 imports of 427,453 tons.

For aircraft and space use, there is no substitute for titanium, which is as strong as steel but lighter in weight. And there is no cost-effective substitute for titanium dioxide pigment.

Average Titanium Prices in the United States

							Dec. 31 in $ per pound		
Year	Ilmenite—F.O.B. Australian Ports[2] $ Tonne	Slag, 85% T_iO_2 F.O.B. Richards Bay, South Africa $ Tonne	Ilmenite Large Lots Bulk, F.O.B. U.S. East Coast $ Tonne	Rutile Large Lots Bulk, F.O.B. U.S. East Coast[3] $ per Short Ton	Rutile Bagged F.O.B. Australian Ports $ per Short Ton	Synthetic F.O.B. Mobile, Ala. — $ per Short Ton —	Titanium Metal Sponge	Titanium Dioxide Pigments Anatase	Titanium Dioxide Rutile
1976	55			510			2.70	0.410	0.465
1977	55			360			2.98	0.435	0.485
1978	50			340			3.28	0.460	0.510
1979	50		—	390			3.98	0.530	0.590
1980	55		—	440		310	7.02	0.570	0.630
1981	70–75		39	450–475		340	7.65	0.690	0.750
1982	70–75	170–180	44–45	450–475		350	5.55	0.690	0.750
1983	70–75	187–198	44–45	400–430		350	5.55	0.690	0.750
1984	36–38	200	44–45	320–340	319–335	350	5.55	0.690	0.750
1985	38–42	212	50–56	350–360	315–328	350	3.50–4.00	.72–.73	0.780
1986[1]	47–53	225–230	50–56	355–375	374–386	350	3.90–4.30	.75–.77	0.820
1987[4]	50–56	235–245	50–56	355–375	397–417	350		.75–.77	.80–.82

[1] Preliminary. [2] Prior to 1984 prices are for T_iO_2 F.O.B. Atlantic Seabord. [3] Prior to 1984 prices are for F.O.B. Eastern Ports. [4] Estimate

Source: U.S. Bureau of Mines

T.690

World Production of Titanium Ilmenite Concentrates[2] In Thousands of Short Tons

Year	Australia[7]	Brazil	Canada[2]	China	Finland	India	Japan[3]	Malaysia (Exports)	Norway	South Africa[3]	Sri Lanka (Ceylon)	United States[4]	USSR	World Total[2 & 3]
1979	1,327	14.5	525.8	N.A.	131.9	161.9	.2	220.3	903.7	316.0	61.0	639.3	450.0	4,752
1980	1,553	18.6	934.4	N.A.	175.3	185.1	N.A.	208.3	912.5	379.0	37.4	556.6	460.0	5,420
1981	1,478	17.5	836.9	150.0	178.0	179.1	N.A.	190.4	727.1	408.0	88.2	542.4	470.0	5,266
1982	1,289	12.5	737.4	150.0	185.0	168.6	N.A.	111.6	608.2	420.0	75.3	263.4	475.0	4,496
1983	1,003	33.6	700.0	154.0	180.7	148.2	N.A.	245.5	612.8	460.0	90.1	N.A.	480.0	4,108
1984	1,681	45.1	800.0	154.0	184.0	154.3		259.0	718.5	460.0	112.5	N.A.	485.0	5,005
1985[1]	1,579	50.0	930.0	154.0	150.0	157.3		272.5	811.1	480.0	126.6	N.A.	490.0	5,203
1986[6]	1,441	50.0	937.0	160.0		154.0		438.4	884.1	480.0	110.0	N.A.	496.0	5,167

[1] Preliminary. [2] Includes Ti slag containing approx. 70% TiO_2. [3] Contains 85% of TiO_2. [4] Includes a mixed product containing ilmenite, leucoxene, & rutile. [5] Includes slag & concentrate. [6] Estimate. [7] Includes leucoxene. *Source: Bureau of Mines* T.692

World Production of Titanium Rutile Concentrates In Short Tons

Year	South Africa	Australia	USSR	Brazil	Sierra Leone	India	Sri Lanka (Ceylon)	United States	World Total
1979	46,000	302,620	11,000	484	8,267	5,445	16,176	N.A.	389,992
1980	53,000	343,639	11,000	472	52,356	5,908	14,097	N.A.	480,472
1981	55,000	254,432	11,000	190	55,992	7,397	14,662	N.A.	398,673
1982	52,000	243,277	11,000	258	52,590	6,374	7,950	N.A.	373,449
1983	62,000	174,404	11,000	510	79,146	6,100	8,921	N.A.	342,081
1984	62,000	187,860	11,000	454	100,641	6,600	7,129	N.A.	375,684
1985[1]	61,000	233,265	11,000	3,100	88,858	7,496	9,434	N.A.	414,153
1986[2]	61,000	242,559	11,000	1,100	107,034	8,000	8,000	N.A.	438,693

[1] Preliminary. [2] Estimate. *Source: Bureau of Mines* T.691

World Production of Titanium Sponge Metal & U.S. Consumption of Titanium Concentrates

	Production of Titanium (in short tons) Sponge Metal[1]						U.S. Consumption of Titanium Concentrates, by Products (in short tons) Ilmenite (TiO_2 Content)			Rutile (TiO_2 Content)			
Year	China	USSR	United Kingdom	Japan	United States	Total	Pigments	Misc.	Total	Welding Rod Coatings	Pigments	Misc.	Total
1979		43,000	2,600	14,000	N.A.	—	475,342	11,886	478,228	9,947	230,776	52,189	292,912
1980		45,000	2,600	21,257	N.A.	—	502,108	11,207	513,315	6,876	211,599	59,407	277,882
1981	2,000	42,000	2,600	27,500	26,419	100,519	501,301	9,721	511,022	6,944	192,779	66,873	266,596
1982	1,500	44,000	2,600	18,600	15,600	82,300	345,618	6,775	352,393	5,275	184,403	35,435	225,113
1983	2,000	45,000	2,000	11,600	13,966	74,000	468,279	6,006	474,285	3,649	210,949	35,820	250,418
1984[3]	2,000	46,000	2,500	16,938	24,326	92,000	492,658	6,319	498,977	3,911	231,808	62,920	298,639
1985[2]	2,000	47,000	1,500	16,938	23,257	91,000	474,561	6,450	481,011	4,881	239,893	41,714	286,488
1986[2]	2,000	48,000	1,500	18,000	17,500	87,000	511,070	1,655	512,725	7,667	244,178	57,539	309,384

[1] Unconsolidated metal in various forms. [2] Estimated. [3] Preliminary. *Source: Bureau of Mines* T.689

Salient Statistics of Titanium[4] in the United States In Short Tons

	Ilmenite				Titanium Slag			Rutile		Exports of Titanium Products			
Year	Production (Gross Wt.)	Shipments (TiO_2)	Imports[3]	Stocks Dec. 31 (TiO_2)	Consumption (TiO_2)	Imports[3]	Stocks (TiO_2)	Imports[3, 4]	Stocks Dec. 31 (TiO_2)	Ores & Concentrates	Scrap	Dioxide & Pigments	Ingots, Billets, Etc.
1979	639,292	389,535	184,478	462,415	106,346	111,210	56,917	283,479	119,947	9,903	4,967	51,456	1,984
1980	556,646	358,181	357,488	584,280	133,933	194,994	127,981	281,605	147,670	17,830	3,300	45,795	3,278
1981	542,357	310,854	236,217	543,114	186,020	268,825	150,706	202,373	153,770	7,297	3,280	62,432	4,203
1982	263,391	145,725	348,366	470,776	168,433	247,845	103,667	163,325	165,762	21,682	4,287	72,823	2,196
1983	N.A.	N.A.	259,328	254,237	127,267	138,708	61,026	111,578	122,189	4,391	5,379	91,702	1,371
1984	N.A.	N.A.	409,605	128,507	152,534	209,839	52,397	180,508	96,186	8,651	4,109	106,124	2,071
1985	N.A.	N.A.	506,804	147,357	199,610	291,828	83,821	179,663	109,319	27,759	6,760	101,954	2,248
1986[1]	N.A.	N.A.	465,617	169,723	221,959	361,872	77,476	174,820	102,938	5,314	6,403	112,227	2,119
1987[2]			435,000			400,000		150,000		6,000	5,000	100,000	2,500

[1] Preliminary. [2] Estimate. [3] For consumption. [4] Natural & synthetic. *Source: Bureau of Mines* T.693

Tobacco

Total U.S. tobacco production in 1987 was forecast by USDA at 1.23 billion pounds, up 6 percent from 1986, with higher yields and increased acreage. Harvested area was just over 600,000 acres, compared to 582,000 a year earlier. Average yield per acre of about 2,050 pounds was 2 percent above a year earlier. The major tobacco producing states were North Carolina, Kentucky, and Tennessee. Although tobacco production was higher, supplies of 4.6 billion pounds were down 6 percent, due to smaller carry-in stocks. Supplies of every type of tobacco were lower.

Use of tobacco in the U.S. in 1987 was expected to increase from 1.59 billion pounds the previous year. U.S. cigarette output was forecast to rise, due to higher exports. Cigarette consumption fell for the third consecutive year, in a continuation of the recent trend. In 1979, per capita cigarette consumption by individuals 18 years and over was 7 pounds; in 1987, it was put at 5.7 pounds. The decline resulted from higher cigarette prices, stemming from increased manufacturers' costs and higher excise taxes.

Retail prices of tobacco products in July 1987 were 7 percent above a year earlier. Manufacturers raised wholesale cigarette prices in December 1986 and in June 1987. In 1987, 13 states and the District of Columbia enacted or imposed cigarette tax hikes, averaging 6 cents a pack. The weighted-average state tax on cigarettes was 17.1 cents in mid-1987. Taxes ranged from 2 cents in North Carolina to 38 cents in Minnesota. The federal excise tax has remained at 16 cents a pack since January 1, 1983.

During the first seven months of 1987, cigarette exports rose by 51 percent. The leading destinations were Japan, Belgium/Luxembourg, Hong Kong, and Saudi Arabia.

Among other tobacco products, consumption of large cigars was expected to fall in 1987 from about three billion pounds a year earlier. Cigar consumption has been declining for many years. The average number of cigars smoked by males 18 years and over in 1987 was 33. Cigarillo or small cigar output may have increased somewhat. Output of products like chewing and smokeless tobacco was also down. While higher prices have hurt tobacco consumption, negative publicity and health concerns have also been factors.

Flue-cured tobacco is the most commonly produced type, making up about half U.S. the crop. U.S. flue-cured tobacco production in 1987 totaled about 675 million pounds, 5 percent more than a year earlier. Beginning stocks on July 1 were 10 percent less than the year before. The total supply of 2.44 billion pounds was about 7 percent below a year earlier. Total use in the 1987/88 season was expected to increase from 873 million pounds the previous year. U.S. exports of flue-cured tobacco were expected to rise, despite higher production by the major competitors, Zimbabwe and Brazil. The decline in the value of the dollar helped.

Burley tobacco is the second major tobacco; the U.S. burley crop in 1987 was expected to be 472 million pounds, 16 percent larger than in 1986. Because the 1986 crop was small, stocks were lower, and the 1987/88 burley supply was down about 5 percent. Disappearance of burley during the first nine months of the marketing year was up slightly from a year earlier. Burley exports were up substantially in the first ten months of the year. Countries taking more tobacco included Japan, Switzerland and West Germany.

Fire-cured tobacco is used for making snuff, chewing tobacco, cigars, and smoking tobacco. The 1987 fire-cured crop was expected to total about 25 million pounds, down 38 percent from a year earlier, due to acreage reduction and lower yields. Total supply was down about 10 percent, but was still much larger than expected use. Usually half the crop is exported. During the first nine months of the marketing year, USDA estimated that disappearance of fire-cured tobacco was down 9 percent from a year earlier. Exports were up, but domestic use, particularly of snuff, fell.

U.S. Government Program

For flue-cured tobacco, the national average loan level for 1987 was 143.5 cents/lb., 0.3 cents below 1986. The national acreage allotment for 1987 was 355,455 acres. The national marketing quota was 707 million pounds, 3 percent below 1986. For burley tobacco, the national average loan level for the 1987 crop was 148.8 cents/lb., the same as in 1986.

World Production of Leaf Tobacco In Thousands of Metric Tons (Farm Sales–Weight[3])

Year	United States	Brazil	Canada	China	USSR	France	Greece	India	Indonesia	Italy	Japan	Pakistan	Philippines	Turkey	World Total[1]
1980	810.9	364.0	107.9	845	289.0	46.5	116.8	438.5	185.5	125.5	141.4	71.0	78.2	228.3	5,199
1981	936.3	325.0	112.4	1,497	273.0	42.8	127.4	440.8	109.7	131.0	137.7	67.6	80.9	168.0	5,939
1982	904.7	378.0	70.2	2,179	307.0	44.5	131.4	520.1	111.4	145.0	139.4	68.3	90.4	207.7	6,878
1983	648.2	378.0	111.7	1,381	385.0	44.5	111.7	590.6	126.0	156.0	136.7	64.6	91.7	234.0	6,044
1984	783.8	392.0	91.3	1,789	381.7	35.9	140.3	492.5	121.4	160.3	135.5	79.1	109.4	177.5	6,501
1985[2]	685.5	397.0	87.9	2,320	376.0	35.7	139.0	472.8	144.5	174.6	116.2	87.4	75.9	175.7	6,850
1986[1]	527.4														6,020
1987[1]	558.1														6,470

[1] Estimated. [2] Preliminary. [3] Farm Sales–weight is about 10% above dry weight which is normally reported in trade statistics.

Source: Foreign Agricultural Service, U.S.D.A.

T.694

Production and Consumption of Tobacco Products in the United States

	Production								Consumption[3] Per Capita[4]						
	Chewing Tobacco														
Year	Plug	Twist	Loose-leaf	Total	Cigar-ettes	Cigars[2]	Smoking Tobacco	Snuff	Cigars[2]	Cigar-ettes	Cigars[2]	Cigar-ettes	Smoking Tobacco	Chewing Tobacco	Total Pdt.'s
	Million Pounds				Billion		Million Lbs.		Number		Pounds				
1979	15.3	2.0	71.7	102.3	704.4	3.60	32.8	23.7	56.0	3,861	.92	7.00	.50		8.12
1980	17.2	1.9	72.1	105.7	714.1	3.45	32.2	25.5	51.1	3,849	.84	6.78	.48		7.98
1981	17.9	1.8	70.3	90.0	736.5	3.43	30.3	42.4[5]	48.9	3,836	.81	6.52	.46	1.13	7.59[5]
1982	15.7	1.7	73.0	90.4	694.2	3.17	28.3	43.8	45.2	3,739	.74	6.45	.42	1.09	7.46
1983	14.1	1.7	71.0	86.8	667.0	3.14	28.0	46.7	43.8	3,488	.72	6.19	.40	1.05	7.19
1984	12.7	1.7	74.4	88.8	668.8	3.13	24.5	49.4	41.9	3,446	.69	5.89	.35	1.05	6.85
1985[1]	11.3	1.5	74.0	86.9	665.3	2.83	22.1	48.7	38.2	3,370	.63	5.91	.32	1.01	6.83
1986[6]	10.4	1.4	69.6	83.0	658.0	2.95	19.4	47.5	36.0	3,274	.59	5.73	.29	.92	6.58
1987[6]	9.8	1.4	66.8		680.0	2.35	17.5	45.0	35.0	3,200	.55	5.68	.27	.90	6.40

[1] Preliminary. [2] Large cigars & cigarillos. [3] Consumption of tax-paid tobacco products; Represents unstemmed equivalent of tobacco used in the manufacture of these products. [4] 18 years old & over. [5] New classifications. [6] Estimate.
Sources: Bureau of the Census, Internal Revenue Service T.695

Production of Tobacco in the United States In Millions of Pounds

Year	Conn.	Florida	Georgia	Indiana	Ken-tucky	Mary-land	Massa-chusetts	North Car.	Ohio	Pa.	South Car.	Tenn.	Virginia	Wis-consin	W. Virg.
1979	4.9	23.2	101.0	11.9	343.1	22.0	1.5	621.4	14.1	17.7	117.7	104.8	109.6	25.1	1.7
1980	5.3	20.4	110.6	16.8	420.7	25.3	1.9	762.4	20.0	24.7	125.5	111.9	106.9	26.0	1.8
1981	5.6	22.8	121.0	18.8	509.6	33.0	2.0	795.9	22.9	27.3	149.6	161.5	157.8	26.4	2.4
1982	4.2	21.0	105.6	20.2	589.4	37.5	.9	700.7	21.9	25.9	124.2	178.2	125.4	20.1	3.6
1983	3.4	17.6	96.4	13.0	324.6	29.7	.8	546.9	17.7	22.0	112.9	118.2	99.1	16.7	3.8
1984	2.8	17.9	85.5	18.8	530.1	30.4	.8	590.0	26.5	22.4	105.5	154.6	115.9	16.4	4.5
1985	3.3	16.3	82.1	14.6	428.4	26.6	.8	556.5	16.9	21.9	98.9	127.4	91.1	18.0	3.4
1986	3.1	13.3	67.9	12.1	314.9	21.1	.6	444.8	13.6	21.8	75.5	82.7	73.5	10.8	2.6
1987[1]	2.8	13.9	73.1	12.6	332.3	18.3	.8	464.2	12.3	20.7	92.7	95.8	75.9	7.7	3.0

[1] Preliminary. December estimate. *Source: Crop Reporting Board, U.S.D.A.* T.696

Salient Statistics of Tobacco in the United States

						Tobacco (July-June)		U.S. Exports of				Stocks of Leaf Tobacco[4]			
												All Types			
Year	Acres Harvested 1,000 Acres	Yield Per Acre Lbs	Produc-tion Million Lbs	Farm Price ¢ Lb	Farm Value Mil. $	Ex-ports[2]	Im-ports[3]	Ciga-rettes	Cigars & Che-roots	Chewing Tobacco & Snuff	Smoking Tobacco[5]	Jan. 1	April 1	July 1	Oct. 1
						Mil. Lbs.		Millions		Metric Tons		Billion Pounds			
1979	827.7	1,844	1,527	141.1	2,154	617.4	398.1	79,717	177	43	8,289	5,071	4,914	4,518	4,740
1980	920.5	1,939	1,786	152.3	2,720	553.4	439.8	81,998	200	191	6,103	4,974	4,608	4,284	4,548
1981	976.0	2,113	2,064	170.6	3,520	584.9	384.9	82,582	181	887	9,105	4,850	4,617	4,285	4,699
1982	912.7	2,185	1,994	176.4	3,517	553.4	434.0	73,585	181	1,073	10,345	5,080	4,909	4,675	5,034
1983	789.2	1,811	1,429	174.7	2,495	526.5	515.9	60,698	130	1,162	15,036	5,367	5,288	4,900	5,209
1984	791.7	2,183	1,728	180.7	3,120	519.8	425.1	56,517	104	525	19,156	5,357	5,210	4,987	5,186
1985	688.0	2,197	1,512	164.5	2,487	541.6	449.1	58,900	101	616	41,845	5,434	5,247	4,997	5,150
1986[1]	581.9	1,998	1,163	152.5	1,778	533.6	487.1	63,900	80			5,293	5,158	4,848	4,902
1987[1]	601.7	2,045	1,230			550.0	500.0	100,000	70			4,979	4,775	4,436	4,455

[1] Preliminary. [2] Domestic. [3] For consumption. [4] Owned by dealer & mfgrs., converted to a farm-sales weight equivalent. [5] In packages & in bulk & other. *Source: Agricultural Marketing Service, U.S.D.A.* T.700

Tobacco Production in the U.S., by Types In Million Pounds (Farm–Sales Weight)

Types	11–14	31	32	21	22–23	35–36	37	41	42–44	72	51–52	54–55	61
1979	946	446	22.0	5.4	39.6	16.1	.6	17.7	2.0	.1	2.4	25.1	4.0
1980	1,086	561	26.2	3.6	32.7	16.2	.4	24.7	2.4	.1	2.6	26.0	4.5
1981	1,170	730	46.4	5.2	32.4	15.7	.7	27.3	2.4	.1	3.5	26.4	4.1
1982	1,006	822	42.0	5.5	47.7	19.9	.7	21.4	3.5		3.5	20.1	1.6
1983	821.3	481.4	37.4	4.6	32.5	14.3	.4	14.2	1.9		2.5	16.7	1.7
1984	864.6	712.2	38.1	6.1	50.5	19.0	.6	14.6	2.2		1.9	16.4	1.7
1985	800.3	573.3	32.9	4.5	45.9	15.2	.2	15.6	1.7		2.1	18.0	2.0
1986	644.6	407.9	27.8	3.5	37.7	10.9	.2	15.2	.5		2.0	10.8	1.7
1987[1]	685.6	461.4	24.6	2.8	22.8	7.2	.1	14.4	.1		1.8	7.7	1.8

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.701

U.S. Exports of Unmanufactured Tobacco In Millions of Pounds (Declared Weight)

Year	Australia	Belg.-Luxem.	Denmark	Egypt	France	W. Germany	Thailand	Ireland	Japan	Netherlands	Norway	Italy	Sweden	Switzerland	United Kingdom	Total U.S. Exports
1978	12.4	16.9	27.1	24.5	9.8	53.2	18.2	5.3	102.3	34.2	4.2	41.0	17.5	26.2	148.8	700.0
1979	12.4	5.4	16.4	3.8	11.5	67.7	18.8	6.9	95.9	29.3	5.7	34.8	13.7	19.3	68.2	567.4
1980	13.4	7.9	17.5	17.4	4.5	100.7	22.6	3.6	82.1	44.9	6.8	30.7	15.4	20.1	32.5	598.7
1981	12.6	9.5	11.1	16.1	6.1	83.2	18.4	3.9	117.0	28.6	4.2	26.5	9.9	22.2	39.4	584.5
1982	10.1	15.2	16.8	22.0	5.3	68.2	27.7	4.7	110.3	25.1	3.6	28.1	8.7	26.7	30.7	572.0
1983	9.7	9.6	20.2	21.6	7.3	58.0	9.1	3.2	114.1	28.4	5.7	32.2	12.4	16.8	27.8	524.4
1984	8.2	9.4	19.8	37.4	5.1	66.0	14.6	8.0	92.1	22.3	4.7	31.3	11.5	25.3	31.8	542.7
1985	7.3	11.5	16.2	41.2	9.9	76.7	17.8	7.3	102.0	20.9	3.3	28.7	15.8	23.9	18.4	548.9
1986[1]	11.7	10.1	14.5	46.5	8.4	82.7	13.0	3.4	83.2	31.2	4.3	22.5	10.2	11.5	21.8	477.5
1987[2]	9.0	11.0	19.0	20.0	8.0	81.0	15.0	3.0	120.0	40.0	3.0	20.0	11.0	15.0	14.0	490.0

[1] Preliminary. [2] Estimate. *Source: Bureau of the Census* T.702

U.S. Salient Statistics for Flue-Cured Tobacco (Types 11–14)

Crop Year	Acres Harvested 1,000	Yield Acre 100 Lbs.	Marketings	Stocks, July 1	Total Supply	Exports	Dom. Disappearance	Total Disappearance	Farm Price ¢ Lb.	Crop Value Mil. $	Parity Price[2]	Price Support Level	Placed Under Gov't. Loan	Under Loan July 1
			Millions of Pounds								¢ Lb.		Mil. Lb.	
1979	502.8	18.8	946	2,075	3,021	520	563	1,083	140.0	1,324	203.0	129.3	72.0	564.0
1980	555.1	19.6	1,086	1,965	3,052	509	530	1,039	144.5	1,569	222.0	141.5	137.2	554.4
1981	540.6	21.6	1,144	2,013	3,157	523	489	1,012	166.4	1,947	243.0	158.7	105.9	595.8
1982	472.3	21.3	994	2,145	3,139	456	479	935	178.5	1,774	254.0	169.9	259.9	518.7
1983–4	409.8	20.0	855	2,205	3,060	453	442	894	177.9	1,521	267.0	169.9	194.8	688.4
1984–5	392.0	22.1	850	2,165	3,015	481	454	935	181.1	1,539	284.0	169.9	159.2	797.5
1985–6	357.1	22.4	789	2,080	2,870	435	477	912	171.9	1,376	289.0	169.9	132.2	833.1
1986–7[1]	308.3	20.9	667	1,958	2,625	393	480	873	152.7	984		143.8	55.5	790.4
1987–8[3]	326.6	21.0	684	1,752	2,436	395	495	890	158.7			143.5		620.0

[1] Preliminary. [2] As of applicable date when support level was computed. [3] Estimate. *Source: Agricultural Marketing Service, U.S.D.A.* T.697

U.S. Salient Statistics for Burley Tobacco (Type 31)

Crop Year	Placed Acres Harvested 1,000	Yield Per Acre 100 Lbs.	Marketings	Stocks, Oct. 1	Total Supply	Exports	Dom. Disappearance	Total Disappearance	Farm Price ¢ Lb.	Crop Value Mil. $	Parity Price[2]	Support Level	Under Gov't Loan	Under Loan on Oct. 1
			Millions of Pounds								¢ Lb.		Mil. Lb.	
1978	261.4	24.0	618	1,218	1,836	121	503	624	131.2	822	184.0	124.7	67.7	113.5
1979	238.1	18.7	446	1,212	1,658	133	499	632	145.2	700	210.0	133.3	7.3	155.4
1980	276.6	20.3	558	1,026	1,583	106	478	583	165.9	930	236.0	145.9	.0	66.3
1981	331.2	22.0	726	1,000	1,726	141	464	605	180.7	1,318	253.0	163.6	.3	0
1982	346.2	23.7	777	1,121	1,898	135	444	579	181.0	1,406	266.0	175.1	269.2	.7
1983–4	292.6	16.5	527	1,319	1,845	112	389	501	177.3	934	280.0	175.1	255.6	226.1
1984–5	315.7	22.6	674	1,344	2,018	154	403	556	187.6	1,264	294.0	175.1	200.3	377.2
1985–6	255.1	22.5	542	1,462	2,004	151	425	576	159.7	914	297.0	148.8	82.7	548.9
1986–7[1]	210.7	19.4	420	1,428	1,848	165	402	567	156.5	638		148.8	38.8	525.7
1987–8[3]	225.3	20.1	453	1,281	1,734	165	415	580				148.8		330.0

[1] Preliminary. [2] As of applicable date when support level was computed. [3] Estimate. *Source: Agricultural Marketing Service, U.S.D.A.* T.698

Exports[1] of Tobacco from the United States In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1978	52.5	55.6	73.2	40.9	32.3	29.2	42.7	52.3	41.3	85.8	95.8	86.3	687.8
1979	35.6	50.1	57.1	51.8	42.2	25.3	38.0	29.5	30.1	41.6	78.9	81.5	561.8
1980	28.0	52.5	80.1	54.6	53.2	43.0	40.9	28.3	32.3	47.6	64.4	66.6	591.5
1981	44.8	32.8	53.7	49.4	44.6	40.1	31.3	27.4	45.5	63.2	86.8	55.6	575.3
1982	31.7	39.4	62.1	41.8	54.0	37.2	23.9	30.2	24.8	74.5	92.2	50.5	562.3
1983	24.2	38.3	46.0	44.0	33.6	32.7	28.6	36.0	26.4	51.7	87.9	60.3	509.8
1984	42.0	40.2	43.3	32.4	26.5	28.9	14.8	18.4	39.1	68.0	97.9	77.1	528.5
1985[2]	34.6	48.5	48.1	54.1	15.8	14.2	20.4	39.2	41.1	48.1	85.4	89.3	538.6
1986[2]	21.6	31.9	48.8	45.9	28.4	22.4	16.4	23.7	22.1	32.9	66.3	106.1	466.6
1987[2]	59.6	25.4	43.1	41.4	32.3	20.7	19.4	15.7	21.6				

[1] Represents unmanufactured tobacco, including stems, trimmings and scrap. [2] Preliminary. *Source: Department of Commerce* T.699

Tung Oil

Tung oil, produced from tung nuts, is an industrial lubricant and drying oil. It is used mainly in paint, varnishes, resins, and plastics. Total world production ranges between 95,000 and 105,000 tonnes. China has long been the major producer, accounting for approximately 75 percent of total outturn. The tree of the Aleurites species, the source of tung nuts, is indigenous to that country.

China is also the largest exporter, accounting for about 50 percent of total world exports. In the 1986/87 season, it exported 21,754 tonnes, followed by Paraguay with 9,200, and Argentina with 6,962. World exports were 42,881 tonnes, versus 41,371 in the previous season.

The U.S. imports all of its tung oil. In 1986/87, U.S. imports totaled 5,565 tonnes, versus 6,697 in the previous year.

Prices, ex-tank Rotterdam, declined from $1,100 per tonne in July 1985 to $605 in December 1986. A change in trend began in January 1987, with prices at $795; they moved steadily higher throughout the year and stood at $1,121 in October 1987.

Supply and Distribution of Tung Oil in the United States In Thousands of Pounds

							— Factory Consumption (Crop Yr. Beg. Oct.) —				
Year	Stocks Jan. 1	Production	Imports	Exports[2]	Total Supply	Apparent Disappearance	Total	Paint & Varnish	Resins & Plastics	Other Inedible Prods	Oil Acquired By CCC
1977	2,300	—	18,821	1,200	19,900	16,900	20,100				
1978	3,000		17,912				13,500	7,200	3,700	2,600	
1979	1,200		20,038				15,700	10,400	3,000	2,300	
1980	3,500		16,239				16,600	8,300	3,700	4,600	
1981	2,800		15,033				14,600	5,800	3,200	5,600	
1982[1]	2,200		14,398				12,700	5,300	2,800	4,000	
1983[1]	2,217		13,635				19,700	5,600	3,400	10,800	
1984[3]	3,137		13,929				12,400	5,100	4,500	2,900	
1985[3]	2,546										
1986[3]	3,514										
1987[3]	4,516										

[1] Preliminary. [2] Also including re-exports. [3] Estimate. *Source: Economic Research Service, U.S.D.A.* T.703

U.S. Consumption of Tung Oil in Inedible Products In Thousands of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1985	1,110	1,079	887	1,039	818	1,197	1,303	1,096	1,105	1,068	911	891	12,504
1986[1]	884	964	959	989	923	1,093	976	895	949	1,091	854	734	11,311
1987[1]	875	940	861	1,054	1,265	1,134	978	1,055	1,146	1,232	1,269		

[1] Preliminary. *Source: Bureau of the Census*

U.S. Stocks of Tung Oil at Factories & Warehouses In Thousands of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1983	2,217	3,124	1,612	1,697	1,768	2,706	2,901	2,742	2,406	1,103	1,948	1,845
1984	3,137	2,867	3,042	2,634	2,609	2,102	1,815	1,802	1,476	1,192	2,113	2,029
1985[1]	2,546	2,589	2,353	1,642	1,707	1,599	1,564	2,163	2,272	1,526	1,798	2,617
1986[1]	3,514	3,347	2,651	3,036	2,847	2,255	2,691	2,[illegible]42	2,151	2,212	3,350	4,123
1987[1]	4,516	3,937	2,830	3,582	2,996	865	2,768	3,699	3,779	3,325	3,625	3,678

[1] Preliminary. *Source: Bureau of the Census* T.703A

Average Price of Tung Oil[1] (Imported-Drums) F.O.B. New York In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	51.0	55.1	55.8	53.0	51.1	48.3	45.2	43.7	46.6	56.5	65.5	67.2	53.3
1981	69.6	68.0	64.0	60.3	62.9	64.5	64.0	64.0	62.1	60.3	58.5	58.5	63.1
1982	61.4	69.5	68.2	66.5	68.3	69.4	66.9	63.5	60.6	60.5	60.5	60.5	64.6
1983	60.5	57.0	57.0	61.9	86.4	102.5	102.5	107.3	133.4	136.0	138.0	138.0	98.4
1984	138.0	138.0	138.0	138.0	138.0	134.0	134.0	117.0	106.9	89.0	81.0	81.0	119.0
1985	81.0	81.0	81.0	81.0	81.0	N.A.	52.0	53.0	55.0	55.0	55.0	52.5	66.1
1986	52.0	46.5	46.1	44.5	43.5	40.1	36.5	34.8	33.0	32.0	32.0	32.0	31.2
1987	33.2	44.5	50.5	59.5	57.3	56.4	56.5	56.5	56.5				

[1] Carlots, imported, f.o.b. New York. *Source: Economic Research Service, U.S.D.A.* T.704

Tungsten

Despite a drop in China's 1987 output to an estimated 12,000 tonnes from 17,000 in 1986, tungsten supplies continued to pressure prices in 1987, according to the United Nations Committee on Trade and Development (UNCTAD). The price of wolframite, the main tungsten ore, fell to $38/tonne in August from the 1986 average of $47. U.S. apparent tungsten consumption in 1987 was about 6,000 tonnes, down from 6,524 in 1986. This reflected a trend toward fewer metallic parts in aircraft and autos, more efficient techniques in manufacturing, and machine tool coatings that extend the life of cutting elements.

The U.S. International Trade Commission ruled in 1987 that Chinese tungsten sales were injuring the U.S. industry, and recommended import quotas. However, an orderly marketing agreement was negotiated with China, effective October 1987-September 1991. Fourth-quarter 1987 imports from China were limited to 425,000 pounds of tungsten content, with limits of 1.81 million for full-year 1988.

The General Services Administration sold 300,000 pounds of surplus tungsten ores and concentrates from the strategic stockpile in October 1987, leaving about 700,000 pounds remaining.

World Concentrate Production of Tungsten In Metric Tons of Contained Tungsten[3]

Year	Japan	Argentina	Australia	Bolivia	Brazil	Burma	China	Rep. of Korea	Canada	Portugal	Spain	Thailand	USSR	United States	World Total
1983	475	41	2,015	2,449	1,026	930	12,500	2,480	328	1,183	517	562	9,100	980	40,925
1984	477	37	1,733	1,893	1,037	1,096	13,500	2,702	3,715	1.509	565	741	9,100	1,203	46,172
1985[1]	568	17	1,970	1,643	1,090	945	15,000	2,579	3,197	1,755	458	586	9,200	996	46,535
1986[2]	511	25	1,300	1,160	800	715	15,000	2,500	1,416	1,637	447	361	9,200	780	42,474

[1] Preliminary. [2] Estimate. [3] Conversion Factors: WO_3 to W, multiply by 0.7931; 60% WO_3 to W, multiply by 0.4758.
Source: Bureau of Mines

T.706

Salient Statistics of Tungsten in the U.S. In Metric Tons of Contained Tungsten

					Consumption of Tungsten Products by End Uses									Stocks at End of Year (Concentrate)	
					Steel										
Year	Net Import Reliance as a % of Apparent Consumption	Production[1]	Shipments from Mines[1]	Total Consumption	Tool	Stainless & Heat Assisting	Alloy Steel[3]	Super-alloys	Cutting & Wear Resistant Materials	Pdt's. Made from Metal Powder	Miscellaneous	Chemicals & Ceramic	Exports	Consumers & Dealers	Producers[1]
1984	70	1,203	1,173	8,577	516	81	38	5	6,386	2,036	983	139	129	959	46
1985	68	996	983	6,838	326	76	19	13	5,033	1,858	674	85	124	1,077	60
1986[2]	62	780	817	4,804	303	73	24	176	4,431	1,000	1,669	28	34	502	21
1987[4]				5,000										455	

[1] Primary concentrates. [2] Preliminary. [3] Other than tool. [4] Estimate. *Source: Bureau of Mines*

T.707

U.S. Imports[1] of Tungsten Ores & Concentrates and Ferrotungsten In Metric Tons[4] (Tungsten Content)

	Tungsten Ores and Concentrates Imported (For Consumption)												Ferrotungsten Imported			
Year	Australia	Bolivia	Brazil	Canada	South Korea	Mexico	Portugal	Spain	Thailand	Peru	Total 1,000 Pounds	Value Mil. $	Austria	Portugal	West Germany	Total 1,000 Lbs.
1983	28	662	78	649	117	215	339	—	142	199	2,861	25.7	25	19	—	48
1984	133	1,302	149	1,464	16	196	606	22	774	605	5,807	51.7	93	65	38	285
1985	414	627	69	1,371	4	183	555	11	472	282	4,746	36.7	27	41	1	93
1986[2]	192	609	8	61	—	173	202	—	264	436	2,522	13.8	85	14	—	185
1987[3]											3,900					

[1] Imports for consumption. [2] Preliminary. [3] Estimate. *Source: Bureau of Mines*

T.708

Tungsten Prices In U.S. Dollars

	Markets		Reported Value, F.O.B. U.S. Mine[2]				Markets		Reported Value, F.O.B. U.S. Mine[2]		
Year	U.S.[1]	European	Total (Mil. $)	Avg. per Unit of WO_3	Avg. per Kilogram of Tungsten	Year	U.S.[1]	European[1]	Total (Mil. $)	Avg. per Unit of WO_3	Avg. per Kilogram of Tungsten
1981	130.25	129.16	62.2	139.21	17.55	1984	85.00	87.00	13.4	90.63	11.43
1982	106.00	107.00	22.1	111.06	14.00	1985	68.00	71.00	9.1	73.77	9.30
1983	85.00	81.00	10.5	82.17	10.36	1986[3]	47.00	53.00	5.8	56.04	7.07

[1] Conc., Stu WO_3, Average (a short ton unit [stu] of tungsten trioxide [WO_3] contains 15,862 pounds of tungsten). [2] Values apply to finished concentrate & are in some instances f.o.b. custom mill. [3] Preliminary. *Source: Bureau of Mines*

T.709

Turkeys

The U.S. turkey crop in 1987 was estimated at 240 million head, up 16 percent from 1986. Federally inspected turkey slaughter was forecast to increase 17 percent (by number), while turkey meat production was expected to be up 18 percent. North Carolina continued to hold its position as top producer, with 48.2 million head, followed by Minnesota (40.7 million), California (24.9 million), and Arkansas (18 million). These states accounted for over 56 percent of U.S. turkey production. Low feed prices, a continued increase in demand, and favorable returns to producers during 1986 encouraged increased production.

U.S. exports of whole turkey and turkey parts were estimated at 30 million pounds for 1987, up 11 percent from 1986. Sales to Canada nearly doubled and accounted for slightly over 20 percent of total exports. The jump in shipments to Canada reflected a supply shortfall of turkey in that country, caused when production increases failed to keep up with a 12 percent rise in consumption. West Germany was also a large buyer, importing 20 percent more from the U.S. than the previous season. However, sales to Egypt and Japan were down sharply, off 75 percent and 35 percent, respectively.

U.S. per capita consumption of turkey in 1987 was expected to average 15.1 pounds, up nearly 13 percent from 1986. This rise continued the trend of the last decade, in which consumption increased a total of 64 percent from 1978 to 1987.

Cold storage stocks of frozen turkeys on October 1, 1987 were a record-breaking 641 million pounds, up 25 percent from a year earlier. Whole turkey stocks were up 25 percent, and stocks of other turkey were up 41 percent. Whole turkey accounted for nearly 79 percent of total inventories. Large stocks, coupled with increased production, put sharp downward pressure on prices, especially in the third and fourth quarters.

Wholesale prices for Eastern region whole hen turkeys were expected to average 55 cents/pound for 1987, a 24-percent drop from the 1986 average of 72.2 cents. Price declines reduced returns to producers throughout the year. Net returns for turkey during first-half 1987 were 1 to 2 cents a pound, down from 7 cents in the year-earlier period. Returns during the third quarter were below break-even, while those during the fourth quarter were expected to be substantially below break-even. These negative returns were down considerably from the 14-cent average in 1986 and are the first losses since 1983.

Sizable carryover stocks from year-end 1987, coupled with a sharp increase in first-quarter 1988 production, were expected to exert tremendous pressure on prices for first-half 1988, causing them to fall well below 1987 levels. Total production for 1988 was forecast to increase 6 to 7 percent. However, 12 percent more turkey was expected to be consumed in 1988, raising per capita consumption to almost 17 pounds. USDA predicted that prices could turn up during second-half 1988, if production increases slowed. But higher production costs and large pork supplies were expected to hold net returns near the break-even level.

Salient Statistics of Turkeys in the U.S.

Year	Breeder Hens on Farms—Dec. 1			(Liveweight)			Ready-to-Cook Basis						In Cents Per Lb.			
											Consumption — Civilian		Production Costs Live-Weight		Wholesale Ready-to-Cook	
	Number	$ Value Per Head	Raised	Produced Million Lbs.	Farm Price ¢ Lb.	Gross Income Million $	Production	Commercial Storage Jan. 1	Exports & Shipments	Military	Total	Per Capita Lb.	Feed	Total	Total Costs	3-City Composite Price
	In Millions						Million Pounds									
1977	3.0	11.39	136.4	2,563	35.5	910	2,023	203	56	11	1,992	9.3	22.6	31.6	51.4	56.2
1978	3.4	12.53	138.9	2,655	43.6	1,157	2,098	168	57	15	2,019	9.2	22.1	31.7	51.7	68.8
1979	3.7	13.57	156.5	2,958	41.1	1,214	2,343	175	57	19	2,204	9.9	25.3	35.8	58.2	67.0
1980	3.7	14.11	164.9	3,077	41.3	1,272	2,425	240	81	16	2,370	10.5	26.1	37.1	61.0	66.0
1981	3.5	15.35	159.9	3,264	38.2	1,248	2,574	198	68	15	2,450	10.7	30.2	41.2	66.1	64.0
1982	3.4	14.60	164.5	3,175	39.5	1,255	2,522	238	56	12	2,489	10.8	24.5	36.3	60.1	63.6
1983	3.2	17.59	170.7	3,336	38.0	1,269	2,635	204	54	13	2,609	11.2	26.6	39.8	65.4	63.5
1984	3.2	16.54	171.2	3,386	48.9	1,655	2,685	162	33	13	2,676	11.4	29.0	42.0	69.0	72.0
1985[1]	— N.A. —		185.3	3,702	49.1	1,819	2,942	125	34	13	2,870	12.1	21.4	35.1	60.1	77.3
1986[2]			207.2	4,142	47.1	1,952	3,271	150	31	10	3,230	13.4	21.1	34.8	59.8	75.2
1987[2]			240.4				3,827	178	32	15	3,657	15.1				

[1] Preliminary. [2] Estimate. *Source: Economic Research Service, U.S.D.A.* T.710

Turkey Per Capita Consumption in the U.S. by Quarters In Pounds

Year	First	Second	Third	Fourth	Total	Year	First	Second	Third	Fourth	Total
1980	1.8	2.0	2.7	4.0	10.5	1984	2.0	2.2	2.7	4.5	11.4
1981	1.6	1.9	2.5	4.6	10.7	1985	2.1	2.3	2.9	4.9	12.1
1982	1.8	2.1	2.6	4.3	10.7	1986[1]	2.4	2.5	3.2	5.3	13.4
1983	2.1	2.2	2.5	4.4	11.2	1987[1]	2.6	3.0			

[1] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.711

Wholesale Price of Turkeys[3] (Hens, 8–16 lbs.) N.Y. In Cents per Pound

												— Yearly Average Price —		
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg.	4-Region Retail	Farm Price[2]
1973	45.1	48.6	56.0	57.7	60.6	67.8	69.4	81.1	86.0	84.2	80.2	71.2	67.3		34.8
1974	60.7	54.2	51.9	45.3	48.4	52.5	52.6	55.8	55.7	54.4	56.3	58.8	53.9		28.8
1975	59.0	56.7	55.9	52.0	52.6	56.5	59.5	61.8	64.3	66.8	69.9	70.0	60.3		34.8
1976	69.0	69.0	69.9	70.0	70.6	71.0	71.0	71.0	71.0	71.0	72.8	73.0	70.8		31.7
1977	72.5	70.2	68.8	68.8	69.0	70.1	72.1	73.2	73.6	74.6	75.5	78.2	72.2		35.5
1978	78.5	78.5	78.9	79.0	82.2	86.1	86.8	87.0	87.0	89.1	91.6	90.7	84.6		43.6
1979	91.0	90.8	90.0	89.5	90.9	91.0	91.0	91.5	91.4	93.1	94.5	92.9	91.5		41.9
1980[1]	62.3	57.8	56.8	54.1	53.3	55.5	63.3	67.2	74.5	77.0	75.0	67.0	63.6		40.0
1981	59.4	60.7	63.8	61.2	63.5	66.2	66.8	61.8	59.5	56.4	57.3	51.7	60.7	97.7	38.4
1982	53.6	55.8	56.0	55.8	58.8	61.8	64.1	64.1	68.0	69.6	67.2	54.2	60.8	92.6	39.5
1983	53.6	54.9	56.0	54.4	56.6	60.9	58.5	57.6	65.0	65.1	67.0	76.1	60.5	91.7	46.6
1984	72.2	64.7	66.1	67.0	66.8	67.0	68.6	72.4	76.2	82.6	91.5	97.3	74.4	98.7	48.0
1985	74.0	65.6	67.0	64.6	62.6	68.1	72.8	78.4	82.4	90.2	93.1	86.9	75.5	105.2	47.2
1986	60.3	61.7	63.9	64.6	67.1	73.8	77.9	80.5	81.2	83.2	80.7	71.1	72.2	106.6	44.4
1987	55.3	58.5	60.3	58.3	55.3	55.7	56.3	56.0	56.1	54.7					

[1] Prior to 1980 prices are for frozen eviscerated tom turkeys (N.Y.C.); heaviest weights. [2] Live weight. [3] Ready-to-cook.
Source: Economic Research Service, U.S.D.A. T.713

Certified Federally Inspected Turkey Slaughter in the U.S. In Millions of Lbs.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1974	97.3	59.8	58.9	80.1	113.2	159.7	213.1	237.2	220.2	261.1	215.2	119.9	1,836
1975	64.9	47.1	54.4	68.7	81.9	138.4	193.2	203.3	229.0	257.5	220.2	157.5	1,716
1976	76.3	61.7	68.6	79.9	106.5	182.2	213.9	243.8	252.8	256.6	261.5	146.4	1,950
1977	70.5	58.7	80.3	78.9	110.0	176.5	189.6	244.4	238.2	250.3	246.8	148.2	1,892
1978	81.8	59.7	86.3	80.8	129.3	189.5	199.9	248.8	230.9	271.2	248.9	156.3	1,983
1979	99.3	77.2	95.0	112.3	157.3	195.9	219.2	267.7	233.0	297.5	261.9	165.5	2,182
1980		378.6			528.3			711.6			713.9		2,232
1981		398.1			553.2			785.2			772.6		2,509
1982		410.4			527.9			761.5			759.1		2,459
1983		462.2			581.5			760.3			759.0		2,563
1984		432.3			589.3			777.2			775.3		2,574
1985		482.1			628.3			854.6			834.8		2,800
1986		174.6	193.6	205.2	236.4	275.8	307.6	299.4	331.4	365.8	307.1	248.2	3,133
1987[1]	215.4	211.9	241.0	256.8	274.2	335.8	358.8	356.9	383.3	399.8			

[1] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.714

Storage Stocks of Turkeys (Frozen) in the United States In Millions of Pounds

Year	Jan. 1	Feb. 1	Mar. 1	Apr. 1	May 1	June 1	July 1	Aug. 1	Sept. 1	Oct. 1	Nov. 1	Dec. 1
1973	208.1	188.4	152.6	115.4	91.3	88.1	137.1	199.4	261.2	350.7	450.5	321.1
1974	281.0	274.0	250.5	235.9	225.0	227.4	265.8	335.8	431.8	528.7	554.6	372.0
1975	275.0	267.1	239.9	207.3	180.2	162.7	193.2	248.6	328.6	409.8	472.4	286.2
1976	195.2	186.8	160.7	140.7	114.5	120.8	177.3	261.8	370.3	459.7	512.3	298.8
1977	203.4	190.3	167.8	142.3	130.3	138.2	201.4	253.6	329.9	409.3	444.5	269.4
1978	167.9	168.2	136.6	113.0	101.1	103.9	152.8	213.6	301.2	373.3	425.4	236.2
1979	175.1	170.7	154.7	135.7	128.0	153.1	200.9	272.5	382.5	432.3	445.5	281.2
1980	240.0	246.8	225.0	208.9	206.6	233.8	286.6	325.8	384.0	398.8	420.2	257.6
1981	198.0	208.3	207.9	220.7	228.7	256.2	327.3	400.8	466.0	532.1	528.1	305.1
1982	238.4	236.9	236.4	232.8	—	—	281.7	—	—	435.8	—	—
1983	203.9	193.8	187.7	185.3	192.3	210.5	255.7	323.5	384.3	432.2	460.1	251.6
1984	161.8	161.5	145.8	144.4	142.2	180.9	226.3	278.2	331.3	390.6	415.4	195.7
1985	125.3	124.1	129.5	131.1	157.0	183.7	243.3	304.7	387.8	444.5	484.1	208.2
1986	150.2	159.2	163.6	150.5	188.9	229.5	297.8	388.1	449.3	511.6	543.2	249.0
1987[1]	178.2	198.3	211.4	226.6	250.9	301.4	381.1	472.5	559.6	640.5	629.8	322.9

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.712

Uranium

Domestic uranium production has trended lower in recent years and in 1987 was estimated at 12.5 million pounds. This was down from 13.8 million in 1986 and only half the amount produced five years earlier. Output has fallen as a result of low prices, stemming from the demise of the U.S. nuclear power industry and due to competition from cheaper uranium imports. Imports, which have risen in the past several years, were estimated at 9.7 million pounds in 1987. The U.S. also exports small quantities of uranium to several Asian countries, under agreements to provide uranium fuel and nuclear reactors.

The accident at Three Mile Island in 1979 damaged public support for nuclear power and subsequently the health of the industry itself. In years prior to the mishap, there had been a build-up in uranium inventories in anticipation of a rapidly expanding nuclear power industry. But the accident was a turning point, and afterwards the outlook for the industry's growth was sharply reduced. As plans for nuclear power plants were cancelled, power companies wishing to reduce uranium inventories dumped supplies at low prices. In the wake of the Soviet Union's nuclear meltdown at Chernobyl, the U.S. industry's image problems worsened. U.S. spot market prices for uranium, which were about $42.00/lb. in 1979, fell and averaged $17.00 in 1986 and $16.65 in 1987.

Canada is the world's leading producer, providing about 30 million pounds annually, and is followed by the U.S., South Africa, and Australia. Canada is the major source of U.S. imports, while South Africa remains a supplier despite U.S. trade restrictions. During the past several years, discoveries of new high-grade uranium, allowing low-cost production, were made in Canada and Australia. These and other recent discoveries have dashed earlier ideas that uranium was in scarce supply world-wide.

During 1987, a number of trade issues affected the domestic uranium market. The U.S. Court of Appeals in Denver decided that the Department of Energy must restrict the enrichment of foreign uranium to protect the domestic industry. Additionally, there was concern that the U.S./Canada free trade agreement could hurt the U.S. uranium industry since Canadian uranium, which is inexpensive, would be brought in without restrictions. And there was controversy over the U.S. prohibition on imports of South African uranium ore and uranium oxide under the sanctions bill passed in 1986. Reportedly, quantities of these two and other types of uranium from South Africa were still coming into the U.S.

Free-World Production of Uranium Oxide (U_3O_8) Concentrate In Thousands of Short Tons

Year	Argentina	Australia	Canada	Spain	Namibia	Gabon	France	Portugal	Niger	Brazil	Sweden	South Africa	United States	World Total
1979	.2	.9	8.9		5.0		3.1		4.7	0		6.2	18.7	49.6
1980	.2	2.0	9.3		5.3		3.4		5.3	0		8.0	21.8	57.2
1981	.2	3.7	10.0		5.2		3.3		5.7	.1		8.0	19.2	57.1
1982	.2	5.7	10.5		4.9		3.7		5.5	.4		7.6	13.4	53.7
1983[2]	.3	4.8	9.8		4.8		4.2		5.2	.4		7.5	10.6	49.3
1984[2]		5.7	14.5		4.8		4.1					7.5	7.5	50.4
1985[2]		4.2	14.2		4.5		4.2					6.4	5.7	45.1
1986[2]		5.4	15.2		4.3		3.9					6.1	6.9	47.9

[1] Less than 50 tons. [2] Preliminary. *Source: Bureau of Mines, Dept. of Energy; NUEXCO.* T.720

Month–End Uranium (U_3O_8) Transaction Values[1]

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1976	—	—	—	—	39.60	39.70	39.70	40.40	40.30	40.60	40.70	40.70
1977	41.30	41.30	41.40	41.50	42.80	42.90	43.00	42.60	42.50	42.80	42.90	42.90
1978	43.10	43.30	43.70	43.60	43.60	43.20	43.30	43.40	43.40	43.60	43.40	43.70
1979	43.60	43.80	43.70	43.40	43.60	43.70	43.70	43.60	43.60	43.60	43.50	42.30
1980	42.00	39.30	38.60	38.40	37.90	37.60	37.30	31.60	30.60	29.00	28.70	27.70
1981	27.20	27.20	27.00	25.70	25.70	24.50	24.40	24.30	23.90	24.10	24.10	24.00
1982	24.00	23.70	23.40	22.60	22.70	21.50	20.30	19.10	17.30	17.00	17.55	18.80
1983	19.35	20.00	21.35	21.40	22.35	22.45	23.50	23.60	23.65	23.65	23.85	23.85
1984	23.05	22.50	19.25	17.90	17.00	16.50	16.60	16.40	16.55	16.05	15.90	15.90
1985	16.20	15.70	15.05	14.90	14.45	14.60	14.75	15.10	15.10	15.75	15.80	16.55
1986	16.55	16.70	16.70	17.10	17.15	17.20	17.50	17.45	17.35	17.25	17.30	17.35

[1] Transaction value is a weighted average price of recent natural uranium sales transactions, based on prices paid in transactions closed within the previous three-month period for which delivery is scheduled within one year of the transaction date; at least 10 transactions; and transactions involving a sum total of at least 2 million pounds of U_3O_8 equivalent. *Source: NUEXCO.*

Vanadium

In 1987, U.S. demand for vanadium, an alloying agent for iron and steel, was basically unchanged from the previous year. Slight increases in usage of ferrovanadium in the production of cast irons and superalloys were more than offset by reduced consumption of high-strength, low-alloy steels and tool steels. For the first eight months of 1987, U.S. consumption of vanadium totaled 3.64 million pounds, with 2.88 million pounds of that in the form of ferrovanadium. U.S. production data is withheld as proprietary by the Bureau of Mines.

Important events in related industries during 1987 had the potential to impact the vanadium market. The Denver U.S. Court of Appeals found that the Department of Energy must restrict the enrichment of foreign uranium in order to protect the domestic uranium industry. This decision was important to the vanadium industry because a significant number of uranium mills have vanadium recovery circuits.

A process which recovers vanadium, molybdenum, cobalt, nickel, and alumina from spent petroleum refinery catalysts was developed by Amax Inc. and CRI Ventures Inc. With the new process, vanadium is recovered from leach liquors following molybdenum precipitation. Amax is transporting the recovered vanadium from a Louisiana plant to Pennsylvania for conversion to ferrovanadium. Amax's recovery plant capacity is estimated at one to three million pounds of vanadium and three million pounds of molybdenum trisulfide annually.

For the first eight months of 1987 (Jan.-Aug.), U.S. imports of vanadium pentoxide content totaled 3.59 million pounds, with a gross-weight total of 12.80 million pounds. Of that total, South Africa was responsible for 56 percent of gross-weight imports, with 7.15 million pounds imported for the eight-month period.

Because the Department of State has certified that vanadium and ferrovanadium, among other strategic minerals, are essential to the economy and national defense, and are unavailable from reliable and secure sources, they are exempt from import sanctions.

Many larger shippers are mining high-grade uranium deposits with no significant vanadium mineralization. Consequently, it is expected that secondary recovery methods will become more important to the vanadium industry.

World Production of Vanadium from Ores and Concentrates In Short Tons (of Contained Vanadium)

Year	USSR	Chile	China	Finland	Australia	Norway	South West Africa[1]	South Africa	United States[1]	Other[4]	World Total
1978	10,000	760	2,200	3,092	—	510	485	12,400	4,272	1,697	35,416
1979	10,000	510	4,000	3,051	—	630	—	13,600	5,520	2,337	39,648
1980	10,500	300	5,000	3,135	—	540	—	16,428	4,806	2,230	42,939
1981	10,500	140	5,000	3,431	77	380	—	13,908	5,126	2,587	41,149
1982	10,500	—	5,000	3,470	25	120	—	12,911	4,098	2,267	38,391
1983	10,500	—	5,000	3,516	—	—	—	9,737	2,171	1,671	32,595
1984	10,500	—	5,000	3,376	—	—	—	13,798	1,617	2,471	36,762
1985[2]	10,500	—	5,000	2,350	—	—	—	15,449	N.A.	3,535	36,834
1986[3]	10,600	—	5,000	—	—	—	—	17,200	N.A.	4,292	37,092

[1] Recoverable vanadium. [2] Preliminary. [3] Estimate. [4] Production from petroleum residues, ashes, & spent catalysts. Mainly in Japan & the United States. *Source: Bureau of Mines* T.722

Salient Statistics of Vanadium in the United States In Short Tons of Contained Vanadium

	Vanadium in Ores & Concentrates		Prod. of Vanad.		Vanadium Consumed by Uses[2]										Exports	
Year	Mine Production	Recoverable Vanadium	Pentoxide (V_2O_5)	Consumer Stocks Dec. 31	Tool Steel	Cast Irons	High Strength Low Alloy	Nonferrous Alloys	Chemicals	Carbon	Full Alloy	Total[6]	$ Per Lb. Van. Pentoxide[3]	General Imports[5]	Ore & Concentrates[4]	Ferro-Vanadium (Gross Weight)
1978	4,446	1,309														
1979	5,841	880														
1980	5,832	4,806	9,829	879	653	54	1,986	728	59	1,114	1,420	6,139	3.54	1,786	960	803
1981	5,852	5,126	11,367	683	584	42	2,123	852	56	1,278	1,832	6,863	3.52	2,435	463	435
1982	4,093	4,098	8,689	326	273	20	1,148	461	29	698	811	3,496	3.50	1,112	2,000	326
1983	N.A.	2,171	4,344	374	426	10	966	505	19	577	716	3,277	3.50	58	2,802	775
1984	N.A.	1,617	4,678	449	610	18	1,636	905	22	683	816	4,761	3.50	633	4,029	469
1985	N.A.	N.A.	N.A.	360	522	22	1,383	788	14	1,135	944	4,883	3.50	303	1,852	454
1986[1]	N.A.	N.A.	N.A.	314	510	24	1,136	652	11	1,026	856	4,308	3.50	2,013	1,973	513

[1] Preliminary. [2] Represent about 90% of the total consumption. [3] Dealer export. [4] Also includes fused vanadium oxide. [5] Ores, slags, residues. [6] Estimate. *Source: Bureau of Mines* T.723

Wheat

World wheat production in 1987/88 was projected by USDA at 502 million tonnes, down 5 percent from a year earlier. The U.S. crop increased, as yields rebounded, but other major producers' crops declined. Canadian output was 26.3 million tonnes, down 15 percent from the 1986 record. China remained the world's leading producer with 87 million tonnes, 4 percent less than a year earlier. The Soviet Union's crop was placed at 80.5 million tonnes, down 13 percent. A wet harvest adversely affected the quality of the Soviet crop. The European Community's production was fractionally higher at 72.2 million tonnes. The harvest in northern European countries like West Germany was wet, and quality was apparently affected. India's crop was estimated at 46 million tonnes, 2 percent less than a year earlier.

Global use of wheat in 1987/88 was put at 527.8 million tonnes, up slightly from a year earlier. Soviet consumption was expected to fall about 5 percent, because supplies were lower. Usage by China, the world's largest consumer, was forecast to be about 2 percent higher. Among smaller nations, wheat consumption was expected to increase about 2 percent.

World wheat trade was projected to rise by 10 percent to 112.5 million tonnes. The U.S. was the leading exporter; its share of world trade, having declined for several seasons, turned the corner and was projected at 38 percent in 1987/88. The EC remained the second largest exporter, with an estimated market share of 23 percent, while Canada was third with 19 percent. Australia's smaller crop meant less export availability, and its market share was put at 9 percent. Argentina accounted for about 5 percent of world trade.

The USSR, the major importer, was expected to purchase 21 million tonnes, up 31 percent from a year earlier. As recently as 1984, the Soviets imported over 28 million tonnes. China, a large importer (with improving diets), was expected to purchase 11.5 million tonnes, 35 percent more than a year earlier.

With world production below the previous year, global ending stocks in 1987/88 were expected to decline by 15 percent to 149.7 million tonnes. World wheat stocks had been increasing for a number of years, but were starting to work lower.

U.S. wheat production in 1987/88 was estimated at 2.1 billion bushels, up about 1 percent from a year earlier. Harvested acreage of 55.9 million compared with 60.7 million in 1986. The national average yield was 38 bu./acre. Production of hard red winter wheat, grown primarily in the Great Plains, was 1.02 billion bushels, down marginally from a year earlier. The soft red winter crop, grown mostly in the Corn Belt and Southeastern states, was 345 million bushels, up 18 percent. The hard red spring crop, in Minnesota and the Dakotas, was 432 million bushels, down 4 percent. The white wheat crop of 216 million bushels was 7 percent below a year earlier, while durum wheat was 93 million bushels, down 5 percent.

U.S. 1987/88 carry-in stocks of 1.82 billion bushels were below the previous season's. And the total wheat supply of 3.94 billion bushels was 2 percent less. Demand for flour-based products increased, and wheat used in milling was projected to rise 4 percent from a year earlier. Estimated feed use was down about 29 percent from the season before.

Exports are the largest source of disappearance. In the mid-1980s, U.S. exports had been trending lower due to foreign competition and declining sales to China, India, and the USSR. In 1987/88, the trend turned, and exports picked up dramatically. The USDA projected exports at 1.55 billion bushels, up 54 percent from 1986/87. The primary markets were the USSR, Japan, China, and Egypt. A key reason for renewed foreign interest was the Export Enhancement Program, which enabled exporters to offer wheat at prices equal to or below competitor's prices. The difference between the export price and the domestic price was made up out of Commodity Credit Corporation (CCC) stocks. Large sales to the USSR and China reflected the success of the program.

U.S. wheat ending stocks in 1987/88 were put at 1.29 billion bushels, 30 percent below a year earlier. Stocks outside of government programs (or free stocks) were expected to make up only about 33 percent of the total. The CCC implemented weekly wheat auctions to draw down government stocks.

U.S. Government Program

For 1988-crop wheat, the loan rate was reduced by 7 cents to $2.21 per bushel. For the first time in many years, the target price for wheat was lowered in 1988, and it was $4.23 per bushel. To qualify for program benefits, producers had to reduce base acreage by 27.5 percent, the same amount as a year earlier. The USDA indicated there would be no paid diversion.

Futures Markets

Wheat futures and options are traded on the Chicago Board of Trade, Kansas City Board of Trade and the Minneapolis Grain Exchange. Feed wheat futures are traded on the Winnipeg Commodity Exchange.

World Production of Wheat In Thousands of Metric Tons

Crop Year	Argentina	Australia	Canada	China	France	West Germany	India	Italy	Pakistan	Spain	Turkey	United Kingdom	USSR	United States	World Total[1]
1983–4	12,800	22,000	26,500	81,400	24,807	8,998	42,800	8,514	12,414	4,268	13,300	10,802	77,500	65,900	489,400
1984–5	13,200	18,700	21,200	87,800	33,241	10,223	45,500	10,005	10,882	5,800	13,300	14,957	68,600	70,600	511,500
1985–6	8,500	16,200	24,300	85,800	29,312	9,866	44,100	8,516	11,703	5,326	12,700	12,045	78,100	66,000	499,200
1986–7[2]	9,000	16,200	31,400	90,300	26,555	10,406	46,900	9,000	13,800	4,292	14,000	14,000	92,300	56,925	528,800
1987–8[1]	9,500	12,500	26,300	87,000			46,000						80,500	57,288	500,800

[1] Estimated. [2] Preliminary. *Source: Foreign Agricultural Service, U.S.D.A.* T.724

World Wheat Supply & Demand In Millions of Metric Tons/Hectares

	Area Harvested	Yield	Production	World Trade	Utilization Total	Ending Stocks	Stocks as % of Util
1983/84	228.8	2.14	489.4	102.0	482.2	109.5	22.7
1984/85	231.0	2.21	511.5	107.0	495.6	125.4	25.3
1985/86	229.3	2.18	499.2	84.8	487.3	137.2	28.2
1986/87[1]	228.0	2.32	528.8	91.3	518.9	147.2	28.4
1987/88[2]	219.8	2.28	500.8	100.1	521.4	126.5	24.3

[1] Preliminary. [2] Estimate. *Source: Foreign Agricultural Service, U.S.D.A.* T.724a

Salient Statistics of Wheat in the United States

Crop Year	Planting Intentions 1,000 Acres	Acreage Harvested Winter	Acreage Harvested Spring	Acreage Harvested All	Avg.—All Yield Per Acre In Bushels	Farm Disposition Used for Seed (Million Bushels)	Farm Disposition Fed to Livestock (Million Bushels)	Farm Disposition Sold (Million Bushels)	Value of Production Ths. $	Foreign Trade[5] Domestic Exports[2] Million Bushels	Foreign Trade[5] Imports[3] Million Bushels	Per Capita[1] Consumption Flour in Pounds	Per Capita[1] Consumption Cereal in Pounds
		1,000 Acres											
1983–4	76,419	47,584	13,806	61,390	39.4	No Longer Available			8,532,790	1,429	4.0	116	3.1
1984–5	79,213	51,513	15,415	66,928	38.8				8,755,033	1,424	9.4	118	3.[illegible]
1985–6	75,575	47,953	16,781	64,734	37.5				7,652,444	915	15.7	123	3.1
1986–7[4]	72,068	43,205	17,518	60,723	34.4				5,050,540	1,004	20.5	126	
1987–8[4]	65,804	39,292	16,622	55,914	37.6					1,225	15.0		

[1] Civilian only. [2] Includes flour milled from imported wheat. [3] Total wheat, flour & other products. [4] Preliminary. [5] Year beginning June.
Source: Economic Research Service, U.S.D.A. T.728

Supply and Distribution of Wheat in the United States In Millions of Bushels

Crop Yr. Beginning June	Supply: Stocks, June 1 On Farms	Supply: Stocks, June 1 Mills, Elevators[3]	Supply: Total Stocks	Supply: Production	Supply: Imports[4]	Supply: Total Supply	Domestic Disappearance: Food	Domestic Disappearance: Seed	Domestic Disappearance: Industry	Feed: Residual[5]	Feed: (On Farms Where Grown)	Total Domestic Disap.	Exports[4]	Total Disappearance
1983–4	668.9	846.1	1,515.1	2,419.8	4.0	3,939	642.6	100.0	—	369.1		1,111.7	1,428.6	2,540
1984–5	591.7	806.7	1,398.6	2,594.8	9.4	4,003	651.0	98.0	—	404.5		1,153.5	1,424.1	2,578
1985–6	582.1	843.2	1,425.2	2,425.1	15.7	3,866	682.5	93.0	—	270.1		1,045.6	915.4	1,961
1986–7[1]	681.1	1,223.9	1,905.0	2,086.8	20.5	4,012	723.7	84.0	—	386.3		1,194.0	1,003.5	2,198
1987–8[2]	560.0	1,260.9	1,820.9	2,114.5	15.0	3,954	750.0	80.0	—	175.0		1,005.0	1,225.0	2,230

[1] Preliminary. [2] Estimated. [3] Also warehouses and all off-farm storage not otherwise designated, including flour mills. [4] Imports & exports are for wheat, including flour & other products in terms of wheat. [5] Approximate feed use. *Source: Economic Research Service, U.S.D.A.* T.737

Stocks, Production, and Exports of Wheat, by Classes In Millions of Bushels

Year Beginning June	Hard Spring June 1 Stocks	Hard Spring Production	Hard Spring Exports[2]	Durum[3] June 1 Stocks	Durum[3] Production	Durum[3] Exports[2]	Hard Winter June 1 Stocks	Hard Winter Production	Hard Winter Exports[2]	Soft Red Winter June 1 Stocks	Soft Red Winter Production	Soft Red Winter Exports[2]	White June 1 Stocks	White Production	White Exports[2]
1983–4	408	323	221	136	73	62	754	1,198	704	74	504	222	143	322	220
1984–5	314	409	183	99	103	61	745	1,251	717	74	531	253	167	301	210
1985–6	371	460	166	100	113	53	717	1,230	395	64	368	149	173	254	152
1986–7[1]	498	451	200	121	95	82	1,009	1,018	432	79	290	115	198	232	175
1987–8[4]	490	441	230	95	91	60	967	1,026	625	77	345	160	185	211	150

[1] Preliminary. [2] Includes flour made from U.S. wheat & shipments to territories. [3] Includes "Red Durum." [4] Estimate.
Source: Economic Research Service, U.S.D.A. T.727

Seeded Acreage, Yield and Production of All Wheat in the United States

Year	Seeded Acreage—1,000,000 Acres Winter	Seeded Acreage Not Durum	Seeded Acreage Durum	Seeded Acreage All	Yield Per Harvested Acre—In Bushels Winter	Yield Not Durum	Yield Durum	Yield All	Production—1,000,000 Bushels Winter	Production Not Durum	Production Durum	Production All
1983	62.1	11.7	2.6	76.4	41.8	31.7	29.3	39.4	1,988.3	358.5	73.0	2,419.8
1984	63.4	12.5	3.3	79.2	40.0	35.3	32.1	38.8	2,060.3	431.1	103.4	2,594.8
1985	57.8	14.6	3.2	75.6	38.1	35.4	36.4	37.5	1,827.6	485.0	112.5	2,425.1
1986[1]	54.0	15.1	3.0	72.1	35.2	32.3	34.0	34.4	1,521.5	472.2	97.9	2,091.6
1987[2]	48.8	13.7	3.3	65.8	39.7	33.6	29.1	37.6	1,561.0	448.5	95.5	2,105.0

[1] Preliminary. [2] Estimate. *Source: Crop Reporting Board, U.S.D.A.* T.726

Production of Winter Wheat in the United States In Millions of Bushels

Year	Colorado	Idaho	Illinois	Indiana	Kansas	Michigan	Missouri	Montana	Nebraska	Ohio	Oklahoma	Oregon	Pa.	Texas	Wash.	So. Dakota
1979	67.6	35.7	53.8	44.4	410.4	31.6	70.4	57.4	86.7	63.4	216.6	48.0	7.3	138.0	94.6	10.5
1980	107.2	51.9	75.4	53.9	420.0	35.2	89.0	54.8	108.3	67.1	195.0	72.0	9.3	130.0	143.0	20.9
1981	83.9	55.7	92.5	62.1	305.0	41.5	115.5	89.3	104.4	72.6	172.8	73.2	9.7	183.4	161.3	30.4
1982	81.5	53.0	67.5	43.3	458.5	23.0	74.8	80.6	101.5	51.6	227.7	59.4	8.2	144.0	125.4	36.3
1983	117.0	55.6	64.4	49.5	448.2	35.8	70.3	79.1	98.9	58.8	150.5	62.0	7.6	161.0	162.5	51.3
1984	110.4	56.7	70.4	48.3	431.2	45.6	84.1	67.0	81.0	48.4	190.8	66.2	8.4	150.0	148.8	61.2
1985	134.6	46.1	36.8	37.1	433.2	45.0	49.9	22.4	89.7	58.9	165.0	51.8	10.1	187.2	115.2	44.1
1986	92.8	51.9	36.1	30.1	336.6	30.6	18.8	64.0	76.0	48.3	150.8	53.9	9.7	120.0	102.9	57.6
1987[1]	93.8	60.0	56.1	34.8	366.3	19.2	35.4	79.2	85.8	46.4	129.6	49.5	8.0	100.8	104.0	55.1

[1] Preliminary *Source: Crop Reporting Board, U.S.D.A.* T.734

United States Official Winter Wheat Crop Production Reports In Thousands of Bushels

Crop Year	Previous December	May 1	June 1	July 1	August 1	Sept. 1	Current December	Final
1978–9	1,321,068	1,284,375	1,308,000	1,801,705	1,248,405	1,243,685	1,248,272	1,222,446
1979–0	1,441,306	1,390,848	1,427,000	1,560,768	1,602,901	1,595,591	1,608,897	1,601,234
1980–1	1,567,817	1,711,010	1,757,170	1,848,000	1,870,000	1,878,000	1,891,251	1,895,383
1981–2	1,977,079	2,078,137	2,013,607	2,092,692	2,064,845	2,059,205	2,098,719	2,103,538
1982–3	2,128,133	2,063,336	2,131,214	2,124,854	2,095,554	2,106,149	2,108,246	2,073,560
1983–4	Discontinued	1,893,241	1,882,916	1,937,388	1,963,243	1,976,843	1,993,888	1,988,304
1984–5		1,979,366	1,972,776	2,021,918	2,045,088	2,036,028	2,060,646	2,060,266
1985–6		1,974,228	1,892,438	1,854,254	1,842,884	1,839,284	1,827,195	2,086,780
1986–7		1,603,127	1,578,277	1,553,026	1,532,526	1,532,526	1,519,143	
1987–8		1,549,344	1,577,489	1,574,439	2,125,097	2,114,492		

Source: Crop Reporting Board, U.S.D.A. T.736

Production of All Spring Wheat in the United States In Millions of Bushels

	Durum Wheat							Other Spring Wheat									
Year	Arizona	California	Minnesota	Montana	North Dakota	South Dakota	Total Durum	Colorado	Idaho	Minnesota	Montana	North Dakota	Oregon	South Dakota	Utah	Washington	Total
1979	5.3		2.8	6.8	84.5	3.6	106.7	2.6	38.4	85.8	52.3	165.1	9.3	46.0	1.6	23.4	426.2
1980	12.4	7.8	3.4	7.6	73.2	4.1	108.4	3.1	44.2	96.9	57.4	105.5	5.4	37.4	1.4	17.2	370.5
1981	18.3	14.7	5.4	11.0	130.8	5.8	185.9	4.0	34.1	134.0	72.5	197.4	4.2	52.8	1.4	7.0	509.3
1982	7.0	11.6	3.0	9.9	110.8	3.5	145.9	3.5	41.8	120.8	89.9	209.3	4.1	58.8	1.6	13.4	545.5
1983	5.0	6.3	1.2	4.1	54.3	2.1	73.0	5.1	36.1	75.1	53.7	135.0	3.6	36.4	1.4	10.1	358.5
1984	7.2	9.4	1.6	3.6	78.6	3.1	103.4	4.6	24.7	103.7	34.1	183.6	2.8	61.7	1.6	11.6	431.1
1985	3.9	7.4	1.7	1.4	95.5	2.6	112.5	4.8	25.9	130.4	26.4	212.0	4.2	64.5	1.6	13.1	485.0
1986	4.2	6.5	1.3	4.3	80.0	1.6	97.9	3.6	29.9	98.1	70.2	198.4	4.5	49.5	1.7	14.0	472.2
1987[1]	3.8	5.1	1.2	5.3	77.0	3.0	95.5	3.6	23.8	98.4	66.7	189.1	3.4	48.6	1.6	10.3	448.5

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.735

Wheat Under Price Support Through the End of the Month (Cumulative Total from Current Season's Crop) In Millions of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1979–0	6.5	30.1	55.6	82.8	103.3	115.5	138.2	145.4	161.0	176.4	179.4	180.5	180.5
1980–1	35.7	56.6	99.2	126.5	142.2	183.3	228.6	261.0	297.4	328.0	328.0	329.4	329.4
1981–2	84.6	164.4	254.8	296.1	314.1	344.7	392.3	411.7	427.4	443.3	444.5	445.8	
1982–3	106.7	206.5	335.2	414.0	467.2	501.1	579.1	606.1	629.4	638.6	640.9	643.4	
1983–4	196.3	335.2	357.5	462.8	494.7	520.4	571.5	595.4	619.2	627.5	629.1	630.3	
1984–5	48.8	104.9	195.5	213.4	225.6	237.7	263.5	270.2	275.7	279.7	280.1	280.8	
1985–6	269.5	414.2	567.7	679.0	714.3	740.7	786.2	803.8	813.5	825.0	827.3	828.1	
1986–7	81.7	155.7	274.6	400.5	441.6	456.0	487.9	500.7	505.6	512.6	513.5	513.4	513.4
1987–8	—	105.1	96.7										

Source: Economic Research Service, U.S.D.A. T.729

United States Grindings of Wheat by Mills In Millions of Bushels (of 60 Pounds Each)

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1979–0	52.1	59.0	52.4	58.9	55.7	50.6	55.0	50.4	49.1	47.2	49.8	47.8	628.0
1980–1	51.8	53.0	54.8	58.4	54.6	56.9	53.9	51.1	55.3	53.4	52.2	52.6	648.0
1981–2	51.2	53.3	54.6	55.6	51.0	50.2	54.8	53.9	57.8	51.4	50.0	51.2	635.0
1982–3	53.4	57.0	55.4	57.5	54.9	55.9	55.7	53.6	60.1	54.8	59.1	57.7	675.1
1983–4	56.2	66.1	62.9	59.4	57.2	56.0	55.7	57.5	58.4	54.0	60.1	54.6	698.1
1984–5[1]	51.8	59.2	55.2	58.7	56.3	53.1	56.9	57.3	58.9	55.0	58.1	53.6	673.8
1985–6[1]	54.6	60.9	59.5	65.1	63.7	56.0	61.1	60.1	55.4	57.7	58.9	58.4	711.4
1986–7[1]	61.7	67.3	67.8	71.1	67.7	65.9	61.7	61.6	63.8	63.5	67.6	66.9	786.6
1987–8[1]	63.9	66.0	67.0										

[1] Preliminary. *Source: Bureau of the Census* T.744

U.S. Wheat Foreign Trade and Domestic Disappearance In Millions of Bushels

Year Begin. June	Imports (Grain Only) June-Aug.	Sep.-Nov.	Dec.-Feb.	Mar.-May	Total	Exports (Grain Only) June-Aug.	Sep.-Nov.	Dec.-Feb.	Mar.-May	Total	Domestic Disappearance June-Aug.	Sep.-Nov.	Dec.-Feb.	Mar.-May	Total
1978–9	.6	.5	.5	.3	1.9	493	309	225	168	1,194	327	195	177	138	837
1979–0	.7	.5	.5	.4	2.1	511	388	283	194	1,375	277	167	209	130	783
1980–1	.8	.6	.6	.5	2.5	375	379	399	360	1,514	194	243	171	174	783
1981–2	.7	.8	.7	.6	2.8	424	486	415	446	1,771	295	233	147	173	847
1982–3	1.2	3.0	2.6	.8	7.6	411	337	394	367	1,509	285	252	180	191	908
1983–4	1.1	.9	1.0	1.0	4.0	347	360	369	353	1,429	356	339	216	201	1,112
1984–5	4.6	1.8	1.2	1.8	9.4	399	486	335	204	1,424	439	337	204	174	1,154
1985–6[1]	3.5	5.1	2.7	4.4	15.7	249	253	224	189	915	401	312	166	166	1,046
1986–7[1]	4.3	3.6	5.8	6.8	20.5	321	263	203	217	1,004	521	223	225	225	1,194

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.730

Wheat Government Loan Program Data in the United States Loan Rates (Cents Per Bushel)

Crop Year Beginning June	Total Support Rate	National Avg.[1]	Target Rate	Corn Belt (Soft Red Winter)	Central & So. Plains (Hard Winter)	No. Plains (Spr. & Dur.)	Pacific North-West (White)	Placed Under Loan	% of Production	Acquired By CCC Under Program	Delivered To CCC	Stocks Ending May 31 Total Stocks	Total CCC Stocks	Outstanding CCC Loans	Outstanding Farmer-Owned Reserve	"Free"
								Millions of Bushels								
1979–0	340	250	340	248	243	251	257	182.0	8.5	157	—	902.0	187.8	99.3	259.9	355.0
1980–1	363	300	363	300	294	302	308	331	14.0	—	—	989.1	199.7	54.6	359.6	375.2
1981–2	381	320	381	320	313	321	329	452	16.1	13	61.1	1,159	190.3	112.0	560.4	296.7
1982–3	405	355	405	356	347	357	365	646	23.0	148	9.3	1,515	192.0	65.2	1,060.6	197.3
1983–4	430	365	430	366	356	368	375	635	26.2	220	192.0	1,399	188.0	379.1	611.2	220.3
1984–5	438	330	438	332	323	334	343	284	11.0	244		1,425	377.6	175.0	657.1	215.5
1985–6[2]	438	330	438	332	323	334	343	825	34.0	365		1,905	601.7	677.7	596.4	29.2
1986–7[3]	438	240	438	236	235	244	250					1,815	830.1	236.9	632.1	115.7
1987–8[3]	438	240	438									1,714				

[1] The national average loan rate at the farm as a percentage of the parity-priced wheat at the beginning of the marketing year. [2] Preliminary. [3] Estimate. *Source: Agricultural Marketing Service, U.S.D.A.* T.741

Exports of Wheat (Only) from the United States In Millions of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1978–9	106.1	131.9	118.3	113.0	92.3	90.0	70.4	67.1	75.5	77.0	76.8	102.2	1,120.6
1979–0	133.3	117.8	129.6	149.0	108.9	114.9	82.7	89.5	94.7	98.3	88.6	96.2	1,305.5
1980–1	123.6	139.6	136.0	116.2	112.2	131.9	129.9	124.4	128.8	127.7	76.0	124.5	1,470.8
1981–2	138.1	145.4	194.1	156.9	127.5	137.4	124.2	138.7	159.1	147.4	114.8	155.7	1,739.3
1982–3	117.9	124.0	130.8	98.5	94.1	88.5	143.1	146.3	131.1	111.8	95.3	112.0	1,393.0
1983–4	115.8	87.5	119.2	114.8	102.3	128.4	118.3	111.0	118.7	94.3	111.7	104.8	1,326.8
1984–5[1]	133.3	146.2	242.4	136.9	96.1	131.4	105.3	81.8	57.4	65.0	55.8	79.1	1,330.5
1985–6[1]	63.9	86.9	72.0	85.6	81.3	60.5	68.6	67.7	60.1	54.0	46.3	79.5	824.8
1986–7[1]	104.0	113.4	97.8	83.5	59.1	49.6	65.0	62.5	63.9	65.1	63.9	119.4	947.2
1987–8[1]	157.0	112.5	118.0										

[1] Preliminary. *Source: Department of Commerce* T.738

United States Wheat and Wheat Flour Imports and Exports In Thousands of Bushels

	Imports					Exports						
	Wheat					Public Law 480						
Year Beginning June	Suitable for Milling	Unfit for Human Consumption	Flour (Wheat Equivalent)	Other Pdt's[2] (Wheat Equivalent)	Total	Sales for Foreign Currency[3]	Long-Term $ & Conver. for Cur. Credit Sales	Gov't. to Gov't. Donations[4]	Donations Thru Voluntary Relief Agencies	Barter for Strategic Materials	Mutual Security (A.I.D.)[5]	Total Specified Gov't. Programs
1980–81	128	58	200	2,148	2,534	—	101,052	9,659	7,158	—	153	118,022
1981–82	59	14	357	2,423	2,853	—	110,046	14,312	8,614	—	—	132,972
1982–83	3,901	35	624	3,036	7,596	—	113,322	22,081	8,724	—	6,805	150,932
1983–84	67	11	336	3,426	3,840	—	120,670	19,114	17,117	—	—	156,901
1984–85[1]	4,825	3	329	4,283	9,440	—	125,829	22,479	7,375	—	2,726	158,409

[1] Preliminary. [2] Includes macaroni, semolina & similar pdt's. [3] Authorized by title, I, P.L. 480. [4] Author. by title II, P.L. 480. [5] Foreign Assist. Act of 1961. *Source: Economic Research Service, U.S.D.A.* T.732

Wheat Stocks in the United States In Millions of Bushels

	On Farms				Off Farms				Total Stocks			
Year	Mar. 1	June 1	Sept. 1	Dec. 1	Mar. 1	June 1	Sept. 1	Dec. 1	Mar. 1	June 1	Sept. 1	Dec. 1
1985	N.A.	582.1	N.A.	N.A.	N.A.	843.2	N.A.	N.A.	1,800.8	1,425.2	3,203.5	2,643.4
1986[1]	N.A.	681.1	1,293.0	1,063.0	N.A.	1,223.9	1,861.6	1,610.5	2,255.8	1,905.0	3,154.6	2,673.5
1987[1]	794.0	560.0	1,145.0	971.0	1,455.8	1,260.9	1,813.0	1,534.9	2,249.8	1,820.0	2,958.0	2,505.9

[1] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.731

Commercial Stocks of Domestic Wheat[1] in the United States, at First of Month In Millions of Bushels

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1982–3	256.8	401.4	471.5	500.7	493.9	454.2	442.5	404.9	360.4	333.8	300.9	267.5
1983–4	285.0	403.1	462.1	477.0	442.0	385.4	334.9	294.9	273.0	255.1	236.6	212.4
1984–5	265.2	423.0	413.7	409.4	387.8	352.8	309.9	268.0	248.5	239.8	215.1	221.4
1985–6	312.5	434.8	474.8	510.9	504.2	473.9	446.3	435.7	413.0	400.3	399.0	407.2
1986–7	437.5	483.7	494.7	475.9	472.7	445.0	435.0	420.0	410.1	393.3	381.1	366.8
1987–8	417.8	436.5	443.7	443.8	439.9	421.4						

[1] Domestic wheat in store in public and private elevators in 39 markets and wheat afloat in vessels or barges at lake and seaboard ports, the first Saturday of the month. *Source: Department of Agriculture* T.746

Comparative Average Cash Wheat Prices In Dollars per Bushel

					Minneapolis					Export Prices (U.S. $ per Metric Ton)				
Crop Year—June to May	Received by U.S. Farmers	No. 2 Soft Red Winter Chicago	No. 1 Hd. Red Ordin. Protein Kansas City	No. 2 Soft Red Winter St. Louis	No. 1 Dark Northern Spring 14%	No. 1 Hard Amber Durum	No. 1 Soft Portland Oregon	No. 2 Western White Pacific N.W.	No. 2 Soft White Toledo	Australia Std. White	Canada Vanc. No. 1 CWRS 13½%	Argentina F.O.B. B.A.	U.S. Gulf No. 2 H.W.	Rotterdam C.I.F. U.S. No. 2 Hd. Winter
1982–3	3.45	3.32	3.94	3.32	4.09	4.25	4.39	3.93	3.33	160	165	166	161	187
1983–4	3.51	3.56	3.84	3.62	4.30	4.83	3.95	3.58	3.48	161	169	138	158	185
1984–5	3.39	3.51	3.74	3.57	4.06	4.44	3.82	3.44	3.42	153	166	135	153	180
1985–6[1]	3.08	3.22	3.28	3.26	3.94	4.07	3.72	3.34	3.12	141	173	106	137	169
1986–7[1]	2.42	2.76	2.72	2.87	3.07	3.57	2.90	2.58	2.66	120	161	88	117	148

[1] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.733

Open Interest of All Wheat Futures Contracts at Chicago,[1] K.C. & Mpls. In Millions of Bushels

	End of Month[1]												Kansas City[3]		Minn.[2]
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. 1	July 1	Jan. 1
1982	335.9	274.7	244.5	234.9	253.2	235.5	277.6	254.8	238.9	218.7	186.8	182.3	137.0	97.7	28.7
1983	193.9	155.5	194.9	172.2	191.7	223.0	294.0	348.1	329.7	300.3	282.3	304.3	118.5	106.0	21.3
1984	291.5	281.3	288.9	248.4	256.7	215.3	246.6	233.0	217.9	222.5	209.9	213.3	89.0	92.8	23.7
1985	197.9	191.7	176.2	189.6	201.6	191.4	189.2	186.3	163.4	152.3	144.2	158.9	95.4	130.9	21.6
1986	167.4	162.8	164.1	183.5	167.0	190.9	178.0	165.7	191.6	165.4	143.5	115.8	63.0	101.0	23.4
1987	140.2	129.6	155.0	149.8	159.2	171.4	184.2	201.1	205.0	172.8	149.6	148.7	59.1	87.0	19.7
1988													96.3		34.3

[1] Chicago Board of Trade. [2] Minneapolis Grain Exchange. [3] Kansas City Board of Trade. *Source: Commodity Futures Trading Commission* T.748

United States Wheat Quarterly Supply and Disappearance In Millions of Bushels

Year & Begin. June 1	Supply				Disappearance: Domestic Use							Ending Stocks		
	Beginning Stocks	Production	Imports[2]	Total Supply	Food	Alc. Beverages	Seed	Feed & Residual	Total	Exports[2]	Total Disappearance	Gov't Owned[4]	Privately Owned[5]	Total Stocks
1980–1	902.0	2,381	2.5	3,285	610.5	—	113.0	59.0	782.5	1,514	2,296	199.7	789.4	989.1
June–Sept.	902.0	2,381	.8	3,284	197.2	[6]	38.0	56.6	291.8	518.4	810.2	201.1	2,272	2,474
Oct.–Dec.	2,474	—	.6	2,474	167.1	[6]	43.0	–11.6	198.5	371.4	569.9	203.1	1,701	1,904
Jan.–Mar.	1,904	—	.7	1,905	150.1	[6]	1.0	24.3	175.4	400.4	575.8	202.6	1,127	1,329
Apr.–May	1,329	—	.4	1,330	96.1	[6]	31.0	–10.3	116.8	223.6	340.4	199.7	789.4	989.1
1981–2	989.1	2,785	2.8	3,777	602.4	[6]	110.0	134.8	847.2	1,771	2,618	190.3	969.1	1,159
June–Sept.	989.1	2,785	.7	3,775	202.5	[6]	37.0	186.4	425.9	621.8	1,048	191.6	2,536	2,728
Oct.–Dec.	2,728	—	.8	2,728	159.0	[6]	45.0	–75.2	128.8	427.4	556.2	190.6	1,982	2,172
Jan.–Mar.	2,172	—	.8	2,173	151.7	[6]	1.0	27.6	180.3	441.0	621.3	189.1	1,362	1,551
Apr.–May	1,552	—	.5	1,552	89.2	[6]	27.0	–4.0	112.2	280.5	392.7	190.3	969.1	1,159
1982–3	1,159	2,765	7.6	3,932	616.4	[6]	97.0	194.9	908.3	1,509	2,417	192.0	1,323	1,515
June–Sept.	1,159	2,765	1.2	3,926	206.4	[6]	37.0	167.1	410.5	545.6	956.1	190.6	2,779	2,970
Oct.–Dec.	2,970	—	3.0	2,973	161.8	[6]	40.0	–28.1	173.7	292.6	466.3	185.4	2,321	2,506
Jan.–Mar.	2,506	—	2.7	2,509	151.4	—	1.0	52.4	204.8	442.1	646.9	185.2	1,677	1,862
Apr.–May	1,862	—	.7	1,863	96.8	—	19.0	3.5	119.3	228.3	347.6	192.0	1,323	1,515
1983–4	1,515	2,420	4.0	3,939	642.6		100.0	369.1	1,112	1,429	2,540	188.0	1,211	1,399
June–Aug.	1,515	2,420	1.2	3,936	214.2	—	1.0	196.5	356.2	346.7	702.9	365.0	2,868	3,233
Sep.–Nov.	2,955	—	.9	2,956	163.7	—	75.0	100.5	338.6	359.7	698.3	375.8	2,160	2,536
Dec.–Feb.	2,326	—	1.1	2,328	163.0	—	3.0	46.4	216.2	369.0	585.2	313.8	1,638	1,952
Mar.–May	1,758	—	.8	1,759	101.7	—	21.0	25.7	200.7	353.2	553.9	188.0	1,211	1,399
1984–5	1,399	2,595	9.4	4,003	651.0	—	98.0	404.5	1,154	1,424	2,578	377.6	1,048	1,425
June–Aug.	1,399	2,595	4.6	3,998	157.8	—	1.0	279.9	438.7	399.2	837.9	278.1	2,882	3,160
Sep.–Nov.	3,160	—	1.8	3,162	168.5	—	69.0	99.9	337.4	486.0	823.4	359.4	1,979	2,339
Dec.–Feb.	2,339	—	1.2	2,340	164.2	—	4.0	35.5	203.7	335.2	538.9	375.7	1,415	1,801
Mar.-May	1,801	—	1.8	1,803	160.5	—	24.0	–10.8	173.7	203.7	377.4	377.6	1,048	1,425
1985–6	1,425	2,425	15.7	3,865	682.5	—	93.0	270.1	1,046	915.4	1,961	601.7	1,303	1,905
June–Aug.	1,425	2,425	3.5	3,854	165.8	—	1.0	234.4	401.2	249.1	650.3	406.7	2,797	3,204
Sep.–Nov.	3,204	—	5.1	3,209	185.6	—	63.0	63.7	312.3	252.9	565.2	517.1	2,126	2,643
Dec.–Feb.	2,643	—	2.7	2,646	165.5	—	4.0	– 3.6	165.9	224.4	390.3	526.3	1,730	2,256
Mar.–May	2,256	—	4.4	2,260	165.6	—	25.0	–24.4	166.2	189.0	355.2	601.7	1,303	1,905
1986–7[1]	1,905	2,087	20.5	4,012	723.7	—	84.0	386.3	1,194	1,004	2,198	830.1	984.7	1,815
June–Aug.	1,905	2,087	4.3	3,996	174.1	—	1.0	345.8	520.9	320.6	841.5	793.8	2,361	3,155
Sep.–Nov.	3,155	—	3.6	3,158	192.1	—	57.0	–25.9	223.3	263.4	486.7	863.9	1,808	2,672
Dec.–Feb.	2,672	—	5.8	2,677	177.2	—	3.0	44.6	224.8	202.7	427.5	905.3	1,348	2,250
Mar.–May	2,250	—	6.8	2,257	180.2	—	23.0	21.8	225.0	216.8	441.8	830.1	984.7	1,815
1987–8[3]	1,815													
June–Aug.	1,815													

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[1] Preliminary. [2] Imports & exports include flour and other products expressed in wheat equivalent. [3] Forecast. [4] Uncommitted, Gov't only. [5] Includes total loans. [6] Less than 50,000 bushels. *Source: Economics Research Service, U.S.D.A.* T.740

Wheat Supply and Distribution in Canada, Australia and Argentina In Millions of Metric Tons

Crop Year	Canada (Yr. Beg. Aug. 1)					Australia (Yr. Beg. Dec. 1)					Argentina (Yr. Beg. Dec. 1)				
	Supply			Disappearance		Supply			Disappearance		Supply			Disappearance	
	Stocks Aug. 1	New Crop	Total Supply	Domestic	Exports[1]	Stocks Dec. 1	New Crop	Total Supply	Domestic	Exports[1]	Stocks Dec. 1	New Crop	Total Supply	Domestic	Exports[1]
1978–9	12.1	21.1	33.2	5.3	13.1	.8	18.1	18.9	2.5	11.7	1.2	8.1	9.3	4.1	4.1
1979–0	14.9	17.2	32.1	5.5	15.9	4.6	16.2	20.8	3.4	13.2	1.1	8.1	9.2	4.0	4.8
1980–1	10.7	19.3	30.0	5.2	16.3	4.3	10.9	15.2	3.5	9.6	.4	7.8	8.2	4.0	3.8
1981–2	8.6	24.8	33.4	5.2	18.4	2.0	16.4	18.4	2.6	11.0	.4	8.3	8.7	4.3	3.6
1982–3	9.8	26.7	36.5	5.1	21.4	4.8	8.9	13.7	4.1	7.3	.8	15.0	15.8	4.8	9.9
1983–4	10.0	26.5	36.5	5.6	21.8	2.3	22.0	24.3	3.4	13.3	1.1	12.8	13.9	4.7	7.8
1984–5	9.2	21.2	30.2	5.2	17.6	7.5	18.7	26.2	2.9	14.7	1.3	13.2	14.5	4.6	9.4
1985–6	7.6	24.3	31.9	5.6	17.7	8.6	16.2	24.8	2.7	16.0	.5	8.5	9.0	4.4	4.3
1986–7[2]	8.6	31.4	40.0	6.3	20.8	6.0	16.2	22.2	2.7	15.7	.3	9.0	9.3	4.5	4.5
1987–8[3]	12.9	26.3	39.2	6.1	21.0	3.9	12.5	16.4	2.7	11.0	.3	9.5	9.8	4.5	5.1
1988–9[3]	12.2					2.7					.2				

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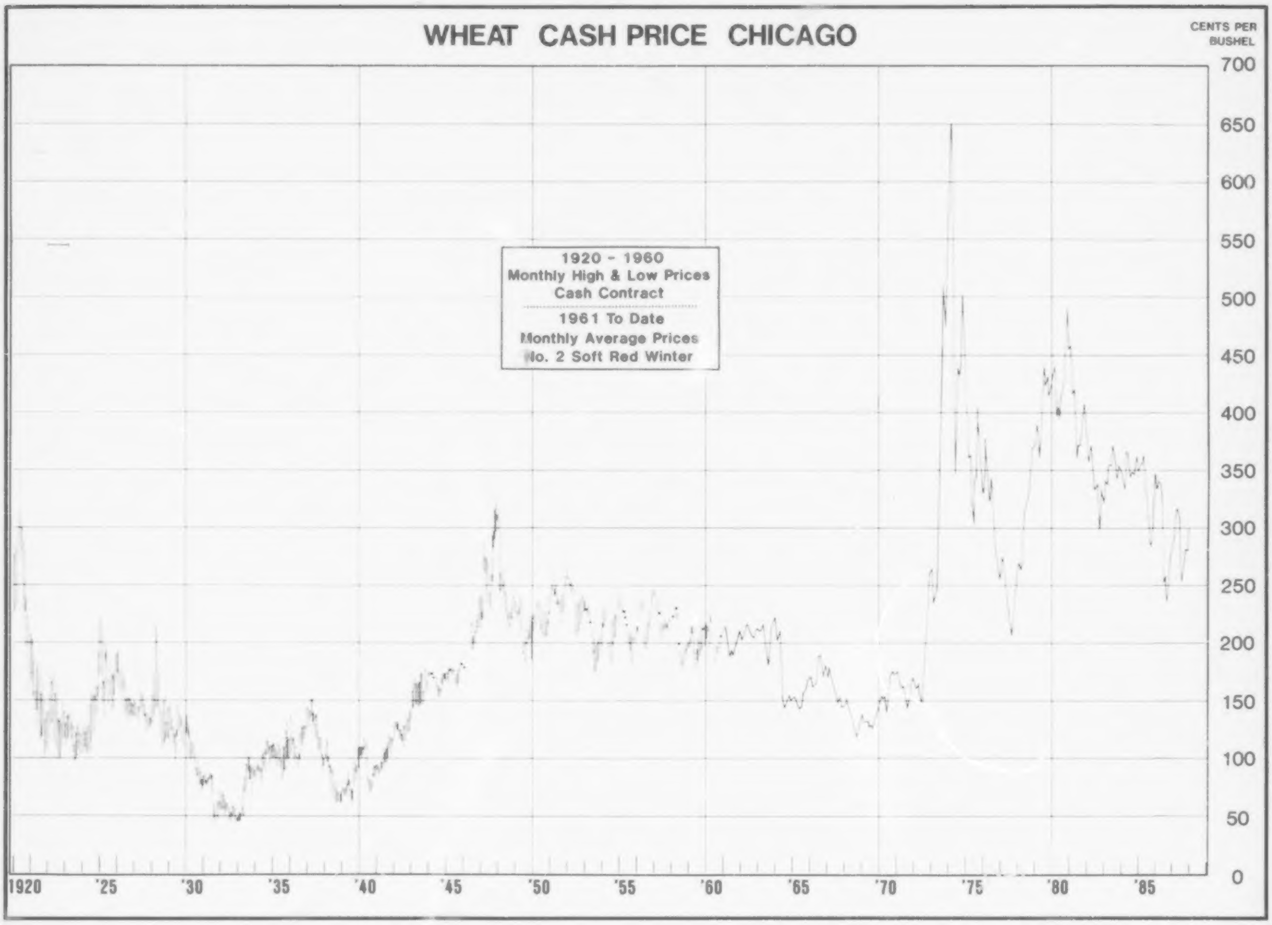
[1] Including flour. [2] Preliminary. [3] Forecast. *Source: Foreign Agricultural Service, U.S.D.A.* T.725



Average Price of No. 2 Soft Red Winter (30 Days) Wheat at Chicago In Dollars per Bushel

Year	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average
1977–8	2.29	2.20	2.08	2.20	2.27	2.59	2.65	2.69	2.64	2.82	3.11	3.14	2.56
1978–9	3.18	3.22	3.32	3.42	3.51	3.68	3.68	3.73	3.88	3.79	3.60	3.86	3.57
1979–0	4.36	4.39	4.23	4.28	4.30	4.13	4.26	4.36	4.39	4.18	3.96	4.04	4.24
1980–1	3.96	4.17	4.21	4.38	4.70	4.92	4.54	4.57	4.34	4.15	4.18	3.80	4.33
1981–2	3.60	3.70	3.70	3.87	3.97	4.08	3.86	3.77	3.57	3.59	3.70	3.43	3.74
1982–3	3.31	3.36	3.35	3.18	2.98	3.33	3.23	3.32	3.40	3.36	3.51	3.55	3.32
1983–4	3.53	3.59	3.71	3.62	3.56	3.42	3.55	3.47	3.34	3.57	3.65	3.65	3.56
1984–5	3.51	3.44	3.49	3.47	3.51	3.62	3.49	3.51	3.55	3.55	3.63	3.34	3.51
1985–6	3.27	3.09	2.87	2.83	3.04	3.33	3.46	3.34	3.37	3.40	3.39	3.25	3.22
1986–7	2.52	2.58	2.44	2.36	2.57	2.73	2.76	2.87	2.91	3.11	3.16	3.08	2.76
1987–8	2.63	2.54	2.61	2.77	2.82	2.80							

Source: Agricultural Marketing Service, Grain Division, U.S.D.A. T.745

Stocks of Wheat Flour Held by Mills in the United States In Thousands of Sacks (100 Pounds)

Year	Jan. 1	April 1	July 1	Oct. 1	Year	Jan. 1	April 1	July 1	Oct. 1
1980	3,975	3,323	4,268	3,716	1984	3,805	3,780	3,763	3,833
1981	3,842	3,897	3,895	4,222	1985[1]	4,230	4,303	5,040	5,052
1982	3,460	3,384	3,744	3,563	1986[1]	4,847	4,740	5,141	5,101
1983	4,276	3,760	3,490	3,599	1987[1]	5,228	5,738	6,176	5,872

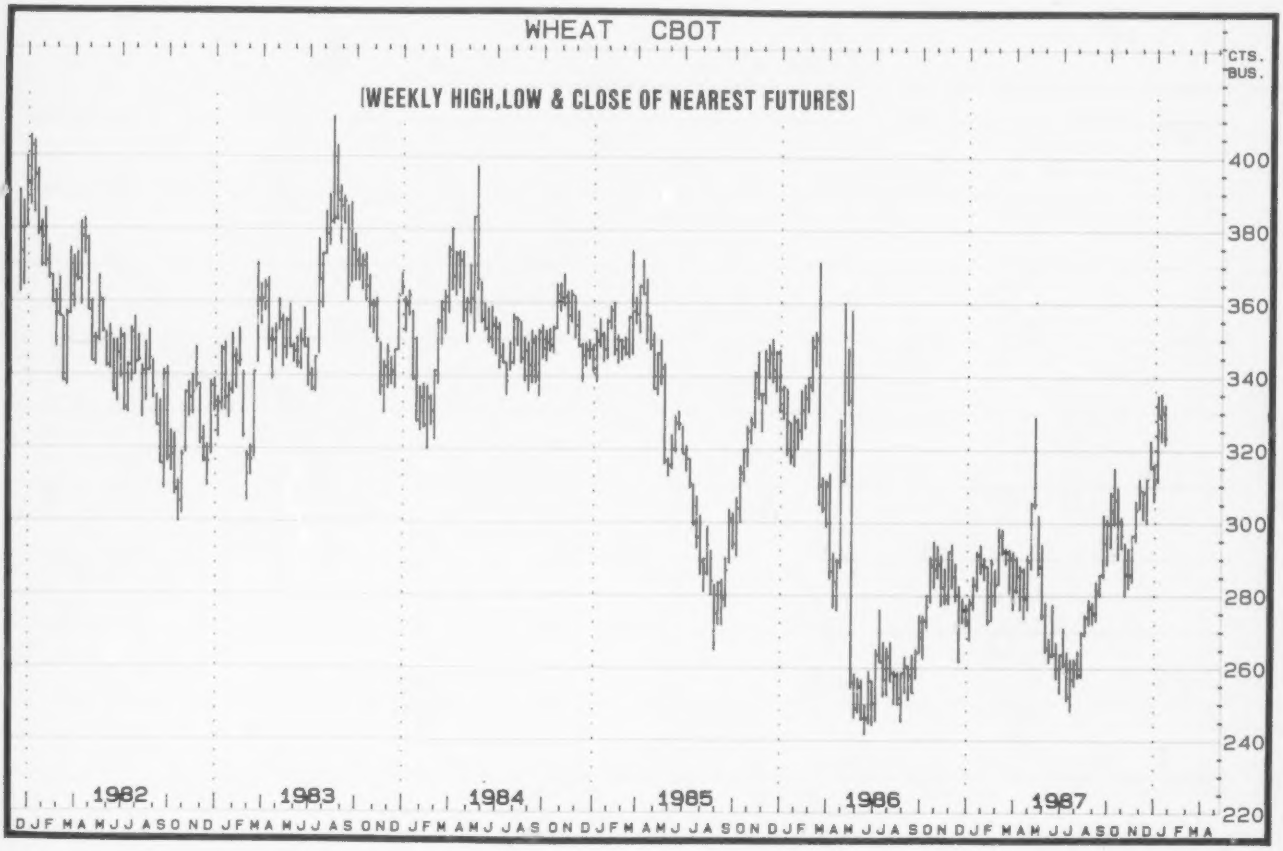
[1] Preliminary. *Source: Department of Commerce* T.755

High, Low & Closing Prices of May Wheat Futures on the Chicago Board of Trade In Cents per Bushel

Year of Delivery		Year Prior to Delivery									Delivery Year					Life of Delivery Range
		Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	
1982	High	526	510	489	491	484½	465	476½	478½	453½	412	400½	375½	382½	360	526
	Low	500	479	447	455	446½	447	455	444½	384	382	360½	345	357	342	342
	Close	506	487	454	476	449½	458	474¼	447¾	400¾	391¾	366¾	370¼	357	354	—
1983	High	444¼	434½	411	403½	399	390½	354¼	368¼	355	356¾	363½	370½	366¼	360½	444¼
	Low	423	406¼	388½	381	374	343¼	327¼	338½	333¼	330½	318½	322¼	338¼	341¾	318½
	Close	431	406¼	395	392	383¼	349½	337¾	353¾	338½	351½	321½	360¼	351¼	346¾	—
1984	High	415	403	388	401¼	441	432	392½	376	365½	359	333¾	375	380	397	441
	Low	396	380¼	375¾	372½	397	386	364¾	347½	347	329¾	324½	330	349½	348½	324½
	Close	399	380¼	379½	398	431¼	390½	369½	355	360½	334	331¼	374	350¾	396½	—
1985	High	383½	405	392½	387	388	363	363½	362½	349¼	347¾	350	361¼	371½	349½	405
	Low	372	367¼	373½	369	355¼	350	351¼	347¼	334½	332½	333¾	335½	345	319¾	319¾
	Close	372	390½	385½	381½	357	353¾	361	349	341	343½	336¼	356½	349	320¾	—
1986	High	350	338¼	328¾	316	305	303	315	319½	326½	320½	294	312	328	360	360
	Low	335	316	314	286½	284	286½	294½	305¼	308½	281	274	285¼	275½	300	274
	Close	338¼	316	314	291¾	291½	300	311½	311¼	321	288¼	286¼	304¼	328	358	—
1987	High	283	300	255¼	250	253	250½	261½	267	269½	274	282	292½	290½	329	329
	Low	244	248	239	233¼	241½	237	244	252½	258	254½	263	278	273½	287¼	233¼
	Close	283	249	239	245¼	246½	244¼	255½	267	260¾	271¼	280	284½	289	295½	—
1988	High	276½	315	288½	282	296¾	302	318	317	319¼						
	Low	264½	276	268	263	276½	280½	293	293	304¼						
	Close	275	281	268	278	282½	290	304	316¼	307½						

Source: Chicago Board of Trade

T.750



WHEAT

Average Price of No. 1 Hard Winter (Ordinary Protein) Wheat, at Kansas City In Cents per Bushel

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
1981–2	425	414	419	431	446	435	433	426	425	428	422	406	427
1982–3	374	370	375	361	386	398	400	408	418	421	405	392	392
1983–4	371	388	390	384	382	385	381	371	385	393	372	380	383
1984–5	367	380	389	386	385	376	376	374	367	362	342	338	374
1985–6	317	303	307	315	335	342	332	330	336	345	340	280	328
1986–7	250	248	253	260	268	268	270	280	290	290	302	270	272
1987–8	259	265	278	290	290								

Source: Agricultural Marketing Service, U.S.D.A. T.739

Average Price of No. 1 Dark Northern Spring Wheat at Minneapolis (14% Protein) In Cents per Bushel

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
1981–2	450	425	423	429	438	422	428	421	416	425	420	413	429
1982–3	416	396	402	400	408	396	393	392	408	440	440	439	409
1983–4	438	434	433	433	425	421	417	408	424	437	445	445	430
1984–5	434	407	397	403	402	392	390	392	394	409	402	399	406
1985–6	377	356	376	391	409	416	397	390	400	417	403	317	394
1986–7	300	286	285	298	309	304	308	313	319	317	324	307	307
1987–8	294	294	304	315	311								

Source: Agricultural Marketing Service, U.S.D.A. T.742

Average Price[1] Received by Farmers for Wheat in the U.S. In Cents per Bushel

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average[2]
1981–2	362	362	365	377	385	380	378	370	367	368	364	339	365
1982–3	326	334	338	343	348	351	357	357	366	375	373	350	355
1983–4	334	361	65	361	354	348	350	340	349	363	366	346	351
1984–5	328	343	43	343	345	338	338	338	338	334	329	309	339
1985–6	293	289	300	309	323	325	319	316	328	337	301	247	308
1986–7	225	226	228	230	243	249	253	258	257	263	266	245	242
1987–8	231	236	254	262									

[1] Weighted average by sales. [2] Includes an allowance for unredeemed loans at average loan values.
Source: Statistical Reporting Service, U.S.D.A. T.743

Average Wholesalde Price Index of Wheat Flour (Spring[1]) June 1983 = 100

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Average
1983–4	99.9	99.6	100.0	98.4	96.6	96.1	96.4	95.8	97.0	99.3	98.8	100.6	98.2
1984–5	99.5	96.9	96.9	97.3	97.7	96.8	98.2	98.7	98.3	100.3	97.0	96.3	97.8
1985–6	95.2	93.1	93.7	94.9	96.6	96.7	96.2	96.4	96.4	94.8	99.7	92.8	95.5
1986–7	87.9	87.0	85.4	86.9	86.8	86.9	87.0	89.1	89.2	89.8	93.5	90.1	88.3
1987–8	88.1	88.0	90.2	91.4									

[1] Standard patent. *Source: Bureau of Labor Statistics* (0212–0301.99) T.758

World Wheat Flour Production In Thousands of Metric Tons

Year	Argentina	Australia[2]	Rep. of Korea	France	India[3]	Mexico	Israel	Japan	W. Germany	Egypt	Poland	South Africa	Un. Kingdom	United States	Yugoslavia
1981	2,456	1,069	1,439	3,481	2,327	2,422	464	4,184	2,601	3,512	2,815	718	3,596	12,884	2,330
1982	2,550	1,086	1,444	3,454	2,404	2,484	498	4,367	2,480	3,550	2,827	726	3,504	13,049	2,442
1983	2,678	1,055	1,476	4,386	3,092	2,435	506	4,356	2,280	3,686	2,539	694	3,420	13,883	2,414
1984	2,851	1,138	1,547	4,632	3,335	2,446	516	4,439	3,500	3,707	2,645	727	3,604	13,600	2,350
1985[1]	2,899	1,159	1,615	4,284	3,444	2,366	530	4,402	3,523	3,598	2,645	564	3,648	14,234	2,411
1986[4]	3,000	1,300	1,600	4,500	3,718	2,126	525	4,534	3,415	3,731	2,498	520	3,700	15,475	2,318

[1] Preliminary. [2] Twelve months ending June 30 of the year stated. [3] Represents 60 percent of the total production. [4] Estimate.
Source: United Nations T.752

Wheat and Flour—Price Relationships at Milling Centers (In Dollars)

Crop Year (June-May)	At Kansas City: Cost of Wheat to Produce 100 lb. Flour[1]	At Kansas City: Wholesale Price of Bakery Flour Per 100 lb.[2]	At Kansas City: Wholesale Price of By-Products Obtained 100 lb. Flour[3]	At Kansas City: Total Products — Actual	At Kansas City: Total Products — Over Cost of Wheat	At Minneapolis: Cost of Wheat to Produce 100 lb. Flour[1]	At Minneapolis: Wholesale Price of Bakery Flour Per 100 lb.[2]	At Minneapolis: Wholesale Price of By-Products Obtained 100 lb. Flour[3]	At Minneapolis: Total Products — Actual	At Minneapolis: Total Products — Over Cost of Wheat
1979–0	9.85	10.02	1.70	11.72	1.87	9.73	10.26	1.51	11.77	2.04
1980–1	10.30	10.38	1.99	12.37	2.07	10.95	11.00	1.78	12.78	1.83
1981–2	9.81	10.37	1.57	11.94	2.13	9.80	10.67	1.41	12.08	2.28
1982–3	9.46	10.22	1.52	11.74	2.28	9.45	10.54	1.26	11.80	2.35
1983–4	9.45	9.99	1.83	11.69	2.37	9.80	10.75	1.59	12.34	2.54
1984–5	8.96	9.78	1.32	11.09	2.13	9.27	10.84	1.01	11.85	2.58
1985–6	8.25	9.21	1.19	10.40	2.15	8.98	11.39	.90	12.29	3.31
1986–7[4]	6.54	8.10	.84	8.94	2.40	7.00	9.22	.63	9.85	2.85
Jun.–Aug.	6.19	7.90	.79	8.69	2.50	6.86	9.70	.62	10.32	3.46
Sep.–Nov.	6.27	8.18	.85	9.02	2.75	6.78	9.52	.64	10.16	3.38
Dec.–Jan.	6.70	7.97	.99	8.96	2.26	7.03	8.55	.66	9.21	2.18
Mar.–May	7.00	8.35	.74	9.09	2.09	7.30	9.10	.58	9.68	2.38

[1] Cost of 2.28 bushels. [2] Quoted as 95% patent at K.C. & standard patent at Minn., bulk basis. [3] Assumes 50–50 millfeed distribution between bran & shorts or middlings, bulk basis. [4] Preliminary. *Source: Economic Research Service, U.S.D.A.* T.751

United States Wheat Flour Production In Millions of Sacks (100 Pounds Each)

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1979–0	23.5	26.3	23.3	26.1	24.8	22.7	24.6	22.6	22.2	21.2	22.8	21.4	281.5
1980–1	23.1	24.0	24.8	26.3	24.4	25.2	24.2	22.8	25.0	24.0	23.4	23.5	290.7
1981–2	23.3	23.7	24.2	24.7	22.8	22.3	24.5	24.0	25.8	22.9	22.3	22.9	283.4
1982–3	23.6	25.2	24.7	25.5	24.4	25.0	24.9	23.8	27.3	24.6	26.2	25.5	300.7
1983–4	25.1	29.4	27.9	26.6	25.4	24.9	24.8	25.5	25.9	24.1	26.6	24.3	310.5
1984–5[1]	22.8	26.0	24.4	26.3	25.1	23.7	25.5	25.6	26.3	24.7	26.1	24.1	300.6
1985–6[1]	24.3	27.3	26.8	29.1	28.4	25.2	27.4	27.1	25.2	26.5	27.2	26.7	321.2
1986–7[1]	27.6	30.2	30.4	31.8	30.3	29.5	28.1	28.0	29.0	27.5	30.0	29.8	352.2
1987–8[1]	28.2	29.5	30.0										

[1] Preliminary. *Source: Bureau of the Census* T.754

United States Wheat Flour Exports In Thousands of 100 Pound Sacks

Year	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1979–0	1,669	2,489	2,218	1,223	842	1,971	1,018	1,300	2,713	867	918	1,606	18,833
1980–1	894	2,137	1,396	1,034	522	609	980	1,896	2,241	2,932	1,724	2,350	18,715
1981–2	987	1,420	724	284	117	184	605	2,165	2,336	2,858	1,760	944	14,384
1982–3	352	1,196	698	593	824	185	1,587	3,734	2,692	4,256	3,193	4,172	23,482
1983–4	3,293	3,095	3,621	3,469	1,122	395	830	883	2,842	2,802	3,213	2,457	28,022
1984–5[1]	1,716	285	433	1,122	121	222	138	2,384	1,857	2,663	1,548	693	13,182
1985–6[1]	850	381	132	131	1,079	2,569	1,374	2,312	2,171	2,526	888	2,089	16,502
1986–7[1]	2,044	2,791	1,824	2,544	941	2,240	2,800	1,508	2,417	2,852	2,856	2,233	27,047
1987–8	2,633	1,902	1,528										

[1] Preliminary. *Source: Department of Commerce* T.756

Supply and Distribution of Wheat Flour in the United States In Thousands of Cwt.

Year	Wheat Ground 1,000 Bu.	Milfeed Production 1,000 Tons	Flour Production[1] 1,000 Cwt.	Flour & Product Imports[2] 1,000 Cwt.	Total Supply 1,000 Cwt.	Exports — Flour 1,000 Cwt.	Exports — Products[2] 1,000 Cwt.	Domestic Disappearance 1,000 Cwt.	Total Population July 1 Millions	Per Capita Disappearance Pounds
1979	636,375	4,945	284,051	823	284,874	20,927	86	263,861	225.1	117
1980	628,599	4,866	282,655	904	283,559	17,378	54	266,127	227.7	117
1981	634,381	5,045	283,966	1,166	285,132	18,655	84	266,393	229.8	116
1982	653,206	5,228	296,907	1,496	292,403	20,926	154	271,323	232.1	117
1983	689,951	5,655	311,587	1,590	313,177	37,315	150	275,712	234.3	118
1984	675,271	5,426	299,832	2,005	301,837	21,752	160	279,925	236.7	118
1985	700,151	5,556	313,815	2,064	315,879	20,766	141	294,972	239.3	123
1986[3]	745,619	5,920	333,402	2,179	335,581	30,005	149	305,427	241.5	126

[1] Commercial production of wheat flour, whole wheat, industrial and durum flour and farina reported by Bureau of Census. [2] Imports and exports of macaroni products (flour equivalent). [3] Preliminary. *Source: Economics & Statistics Service, U.S.D.A.* T.753

Wool

World wool output rose by one percent to 63.7 billion pounds, clean, in the 1986/87 season, with Australia and the USSR, the largest producers, both showing increases. Demand for wool by importers was reportedly good during the season, and major exporters were able to draw down stocks.

Australia's 1986/87 production was pegged at 1.79 billion pounds, and was expected to rise 3 percent to 1.84 billion in 1987/88. The country's 1986/87 exports were strong, and by the end of the July/June season, the Australian Wool Corporation held inventories of 386,000 bales, which was below the previous season's ending level and only about 25 percent of the huge stocks it held in late 1984. The country's wool floor price in 1987/88 was raised 27 percent from the previous season to 645 cents/kilogram.

New Zealand's wool shipments were strong during 1986/87, and its season's ending stocks were 23 percent below the year-earlier level. South African export sales were also good during 1986/87; stocks there fell 37 percent from the previous season.

In the U.S., 1987 wool production was preliminarily estimated by USDA at 49 million pounds, compared with 45 million in 1986 and 47.1 million in 1985. In recent years, U.S. wool ouput has fallen from earlier levels, as sheep herds have declined (partly due to reduced lamb and mutton consumption). Rising labor costs and competition from man-made fibers have also been reasons for lower wool output. U.S. wool imports during 1987 were estimated by USDA at 100 million pounds, up 3 percent from 1987. Major suppliers were Australia, New Zealand, the UK, and Uruguay. Wool usage by mills continued to improve and was estimated at 150 million pounds, versus 137 million in 1986 and 117 million in 1985. Over 90 percent of the wool consumed in the U.S. was used in clothing, and the rest was used in carpets. U.S. wool exports, which were destined mainly for Canada, were expected to increase slightly to one million pounds. Stocks at the end of 1987 were placed at 49 million pounds, the lowest level in five years.

The 1985 Farm Bill extended U.S. price supports for wool through 1990. The support price for shorn wool in 1987 was $1.81 per pound, up from $1.78 in 1986, but there was a chance it could be reduced slightly to comply with the Gramm-Rudman balanced budget act. If the average price received by producers for shorn wool marketed during 1987 was below $1.81/lb., support payments were to be made beginning in April 1988. During the first half of 1987, average prices received by producers were well below the support price and ranged from $0.57/lb. to $1.11.

Futures Markets

Greasy merino wool futures are traded on the Sydney Futures Exchange, and New Zealand crossbred futures are traded in London.

World Production of Wool[3] In Thousands of Metric Tons (Greasy Basis)

Year	Brazil	Argentina	Australia	China	France	Morocco	India	New Zealand	Spain	Turkey	South Africa	United Kingdom	United States	Uruguay	USSR	World[1] Total
1980[2]	35	163	700	176	27	22	35	381	28	61	112	50	49	79	464	2,641
1981[2]	33	163	716	180	27	22	35	363	21	62	112	42	50	79	482	2,653
1982[1]			701					370							471	
1983[1]			672					370							474	

[1] Estimated. [2] Preliminary. [3] Includes shorn, pulled, & wool exported on skins. *Source: Foreign Agricultural Service, U.S.D.A.* T.760

Wool Goods[1] Production in the United States In Millions of Square Yards

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year	Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total Year
1980	45.2	46.8	31.9	34.4	158.3	1984[2]	48.6	44.3	29.7	36.7	159.4
1981	50.6	52.9	39.0	35.5	178.1	1985[2]	43.2	39.5	24.3	34.0	138.3
1982	41.0	36.3	20.2	23.6	121.1	1986[2]	37.7	38.8	27.3	30.2	134.1
1983	36.0	41.8	28.8	37.0	143.5	1987[2]	48.0	48.1			

[1] Woolen and worsted woven goods, except woven felts. [2] Preliminary. *Source: Bureau of Census* T.763

Price Received by Farmers for Shorn[2] Wool in the U.S. In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average[1]
1984	58.4	67.1	79.3	87.9	86.5	86.6	82.3	78.5	74.3	80.2	67.5	69.4	79.5
1985	59.2	58.7	61.0	67.9	68.5	69.8	64.0	60.2	59.5	66.6	58.5	56.8	63.3
1986	52.2	54.4	61.9	70.0	73.7	75.5	67.5	65.9	57.6	69.7	64.0	59.4	66.8
1987[3]	57.0	59.6	71.0	96.8	111.0	94.9	86.6	84.2	88.2	87.2	86.5	86.2	84.1

[1] Weighted average. [2] Grease basis. [3] Preliminary. *Source: Crop Reporting Board, U.S.D.A.* T.765

Salient Statistics of Wool in the United States

						Pulled Wool Production			Apparel Wool (Clean Content)					Mill Consumption	
Year	Sheep & Lambs Shorn[2] Ths.	Weight per Fleece Lbs.	Shorn Wool Production Ths. Lbs.	Price per Lb.	Value of Production Mil. $	Avg. Weight per Skin Lbs.	Total	Total Wool Production[4]	Domestic Prod.	Exports Domestic Wool	Imports for Consumption[4]	Total New Supply[3]	Carpet Wool Imports for Cons.	Apparel	Carpet
							Thousand Pounds								
1979	13,069	8.02	104,867	86.3	90.5	3.20	900	105,767	56,022	313	20,283	98,039	22,047	106,533	10,513
1980	13,263	7.95	105,419	88.1	92.8	3.10	1,050	106,469	56,426	304	30,491	112,605	25,992	113,423	10,020
1981	13,493	8.14	109,787	94.4	103.7	3.05	1,150	110,937	58,806	307	48,106	132,750	26,145	127,752	10,896
1982	13,199	8.04	106,129	68.6	72.8	N.A.	N.A.	106,129	56,036	1,351	39,988	116,106	21,433	105,857	9,825
1983	12,865	8.00	102,886	61.2	63.0			102,886	54,324	1,014	49,371	131,369	28,688	126,729	13,851
1984[1]	12,284	7.77	95,471	79.5	75.9			95,471	50,429	488	63,271	144,117	30,906	128,982	13,088
1985[1]	11,236	7.83	87,966	63.3	55.7			87,966	46,446	1,415	50,164	124,503	29,308	106,051	10,562
1986[1]	10,800	7.80	84,400	86.6	73.1				45,000	800	66,090	110,290	30,901	126,768	9,960
1987[1]									47,000	1,000					

[1] Preliminary. [2] Includes sheep shorn at commercial feeding yards. [3] Production minus exports plus imports; stocks not taken into consideration. [4] Apparel wool includes all dutiable wool; carpet wool includes all duty-free wool. *Sources: Economics Service, U.S.D.A.; Dept. of Commerce*

T.766

Consumption of Apparel Wool in the United States In Millions of Pounds (Clean Basis)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	11.3	10.2	9.8	11.4	9.2	8.3	7.5	8.4	7.7	10.8	8.8	10.0	113.4
1981	10.2	11.0	12.9	10.8	10.2	12.8	8.4	10.1	11.4	9.4	9.4	11.2	127.8
1982	9.4	9.6	12.9	9.2	8.3	9.4	5.9	8.0	8.4	7.2	7.8	9.6	105.9
1983	8.5	9.3	12.4	10.2	9.4	13.0	8.5	10.0	12.3	10.7	10.7	11.8	126.7
1984	10.6	12.0	14.1	11.3	11.9	13.0	8.2	9.9	11.2	8.5	8.9	9.4	129.0
1985[1]	9.3	8.3	9.8	8.8	9.3	10.5	6.5	8.1	10.4	8.6	8.8	8.9	106.1
1986[1]	12.6	11.1	11.6	12.7	10.2	10.8	11.3	9.4	9.4	11.1	9.3	10.1	126.8
1987[1]	12.4	11.5	14.1	11.3	11.3	13.6	9.7	10.0	12.4				

[1] Preliminary. *Source: Bureau of the Census*

T.767

Average Wool Prices[1]—Australian—64's, Type 62, Duty Paid—U.S. Mills In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1980	292	310	306	299	310	321	311	306	311	306	320	321	309
1981	319	312	307	314	316	319	323	320	316	316	317	312	316
1982	301	303	313	323	336	321	304	294	287	276	269	267	299
1983	273	271	266	266	262	262	260	262	263	271	270	266	266
1984	268	276	279	276	271	269	255	259	247	249	255	251	263
1985	246	233	236	227	234	229	230	226	224	224	217	222	229
1986	231	229	231	238	252	242	N.A.	229	224	230	240	250	236
1987	252	259	288	325	327	335	332	373	341	348	347		

[1] Raw, clean basis. *Source: U.S. Dept. of Agriculture*

T.768

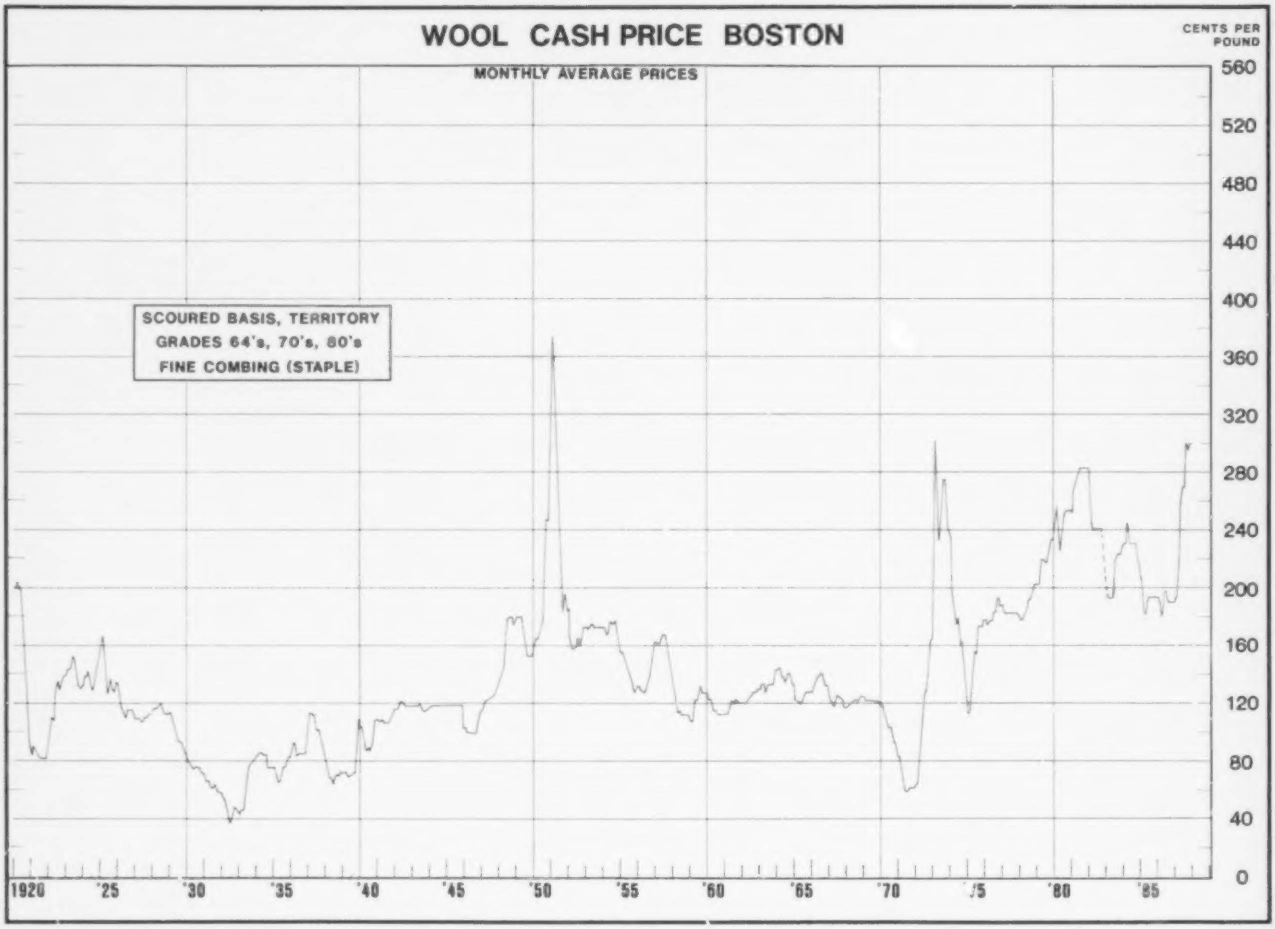
Average Wool Prices—Domestic[1]—Graded Territory, 64's, Staple 2¾" & Up—U.S. Mills ¢/Lb.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1976	177.5	177.5	173.5	176.2	177.5	177.5	182.5	182.5	187.5	192.5	192.5	187.5	182.1
1977	187.5	187.5	182.5	182.5	182.5	182.5	182.5	182.5	182.5	182.5	182.5	182.0	183.3
1978	182	178	178	181	184	192	192	192	195	197	202	202	190
1979	202	202	206	220	220	218	218	218	220	230	233	233	218
1980	238	253	256	231	225	233	245	251	253	253	253	253	245
1981	253	268	274	278	278	283	283	283	283	283	283	283	278
1982	275	263	244	240	240	240	240	240	240	—	—	—	247
1983	—	—	193	193	193	198	219	223	225	225	225	228	212
1984	230	230	230	245	234	230	230	230	230	221	218	214	228
1985	205	195	185	182	191	193	193	193	193	193	193	193	192
1986	193	189	180	188	198	198	193	190	190	190	190	190	191
1987	193	202	216	260	270	270	270	300	295	300	300		

[1] Raw, shorn, clean basis. *Source: U.S. Dept. of Agriculture*

T.769

WOOL CASH PRICE BOSTON



Wool: Mill Consumption, by Grades in the U.S., Scoured Basis In Millions of Pounds

	Apparel Wool[1]							
	Woolen System			Worsted System				
Year	60's & Finer	50's Up to 60's	Total	60's & Finer	Coarser Than 60's	Total	All Total	Carpet Wool[2]
1981	35.2	29.3	64.5	41.2	22.0	63.3	127.8	10.9
1982	23.8	24.6	48.4	36.2	21.3	57.5	105.9	9.8
1983	30.5	30.2	60.7	42.4	23.6	66.0	126.7	13.9
1984	32.9	32.2	65.2	39.7	24.1	63.8	129.0	13.1
1985	28.0	27.7	55.7	33.6	16.7	56.3	106.1	10.6
1986[3]	34.1	32.2	66.3	41.7	18.8	60.5	126.8	10.0
1987[4]			80.0			70.0	150.0	12.0

[1] Domestic & duty-paid foreign. [2] Duty-free foreign. [3] Preliminary. [4] Estimate. *Source: Economic Research Service, U.S.D.A.* T.762

United States Imports[1] of Unmanufactured Wool (Clean Yield) In Millions of Pounds

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1982	8.0	6.3	6.6	4.9	6.0	6.6	4.0	4.2	4.7	2.9	3.6	3.7	61.4
1983	6.0	6.2	5.0	6.7	4.9	7.5	6.5	5.8	5.1	8.5	8.0	8.9	78.1
1984	11.2	9.0	7.8	7.8	10.4	6.7	9.6	6.4	6.0	6.9	5.6	6.8	94.2
1985	10.7	5.8	6.0	5.7	7.1	4.9	7.3	4.5	6.9	7.1	5.5	8.0	79.5
1986	10.2	8.8	7.6	7.5	8.0	8.6	7.8	6.3	7.0	5.0	9.2	10.8	97.0
1987	8.6	8.2	9.5	8.7	13.4	8.9	8.6	8.4	6.7				

[1] Data are imports for consumption. *Source: Department of Commerce* T.764

Zinc

Increased use of galvanized zinc, the result of a relatively low-tech and century-old industrial process, was responsible for most of the U.S. zinc industry's growth in 1987. Automakers' activities dominated the demand situation, as they continued to switch to zinc-coated steel for auto body parts.

One of 1987's more notable trends was the reopening and start of a number of zinc mines and smelter facilities. An improved market for domestic output and a change in attitude by labor unions toward wage rollbacks boosted the profitability of production. Labor settlements were reached at a number of mines, mostly with rollbacks or minor wage concessions.

The recent run of mergers and acquisitions in the U.S. didn't bypass the zinc industry in 1987. In September, Horsehead Industries Inc. became the largest domestic zinc producer through the acquisition of a subsidiary of another corporation. The new company, called Zinc Corporation of America, is the largest domestic producer of slab zinc, zinc oxide, zinc dust and powder, specialty alloy powders, and some specialty zinc powders.

For the first seven months of 1987, domestic zinc mine production was 123,961 tonnes, up about six percent from the same period in 1986. Total 1986 output was 202,983 tonnes. Estimated smelter slab zinc production for the same period was 181,921 tonnes (under a revised reporting procedure), up about nine percent over the corresponding 1986 period. Total 1986 production was 316,281 tonnes.

Zinc consumption for the period Jan.-Aug. 1987 totaled 661,932 tonnes, for an implied annual consumption of 992,898 tonnes, down slightly from 1986's total use of 1.01 million tonnes. The major type consumed was slab zinc; for the first eight months of 1987, it was responsible for about 71 percent of total use at 471,454 tonnes. Slab zinc accounted for 705,963 tonnes in all of 1986.

U.S. general imports of zinc ore and concentrates for the period Jan.-July 1987 were 235,670 tonnes, sharply above 1986's total 197,736 tonnes. However, Jan.-July imports for consumption were only 12,760 tonnes, compared with 1986's total 75,786 tonnes. About two-thirds of U.S. slab zinc requirements are imported.

U.S. imports of blocks, pigs, or slabs for the first seven months of 1987 were 389,297 tonnes, compared with full-year 1986 totals of 665,126 tonnes.

Canada was the largest exporter to the U.S. of ore and ore concentrates, zinc slabs, blocks, and pigs. In 1986, Canada supplied 150,000 tonnes of ore and ore concentrates and 349,335 tonnes of blocks, pigs, and slabs.

Construction materials accounted for about 45 percent of U.S. slab zinc consumption; transportation, 25 percent; machinery, 10 percent; electrical uses, 10 percent; and other, 10 percent. Of the total slab zinc consumed, galvanizing accounted for 47 percent; zinc-base alloys, 28 percent; brass and bronze, 10 percent; and other, 15 percent. About 225,000 tonnes of zinc in compounds and dusts were consumed mainly by the chemical, agricultural, rubber and paint industries. Major co-products of zinc mining and smelting were lead, cadmium, silver and sulfur.

Identified world zinc resources are estimated at 1.8 billion tonnes. Data on sphalerite-bearing coals in the mid-continent U.S. indicate a resource potential of millions of tonnes of zinc, possibly recoverable as a by-product of coal mining with limited modification of existing technology. Aluminum, plastics, and magnesium are the major substitutes for zinc in numerous processes.

Futures Market

Zinc futures are traded on the London Metal Exchange (LME).

Salient Statistics of Zinc in the United States In Thousands of Metric Tons

	Net Import Reliance as a % of Apparent Consumption	Production of Slab Zinc						Dec. 31 Stocks at				Consumption					
		Primary												Base Scrap[2]			
Year		Domestic	Foreign	Total	Value Mil. $[6]	Redistilled Secondary	Total Production	Producer Plants	Consumer Plants	Gov't. Stockpile	Total All Stocks	Zinc Slab	Ores[2]	Zinc[3]	Copper	Aluminum[4]	Total
1976	59	346.4	106.1	452.6	359	62.2	514.7	88.0	109.9	349.4		1,028.9	91.8	138.4	139.2	.5	1,394
1977	57	322.2	86.2	408.4	309	45.9	454.3	83.8	86.5	347.8		999.5	86.5	139.6	139.6	.6	1,368
1978	66	267.4	139.3	406.7	207	34.8	441.5	37.9	99.3	345.9		1,050.6	90.0	73.2	141.5	.5	1,442
1979	63	255.3	217.1	472.5	220	53.2	525.7	59.1	92.6	345.7		1,000.6	79.7	146.7	166.4	.9	1,394
1980	60	231.9	108.6	340.5	262	29.4	369.9	22.6	69.6	342.4	125.8	811.1	59.0	133.0	138.2	1.1	1,142
1981	65	259.8	86.7	346.5	307	50.2	396.8	44.7	81.9	340.6	195.4	840.9	60.6	149.3	138.7	.7	1,189
1982	58	193.3	34.9	228.2	257	74.3	302.5	34.2	77.6	340.6	159.2	709.5	35.5	93.1	114.3	.7	953.1
1983	65	210.3	25.4	235.7	251	69.4	305.1	23.9	89.0	340.6	148.1	805.9	38.3	131.7	144.0	.7	1,121
1984	68	197.9	55.2	253.1	271	78.1	331.2	46.3	72.5	340.6	137.6	848.9	47.6	157.9	159.5	.7	1,215
1985	70	198.0	63.2	261.2	202	72.6	333.8	32.4	60.3	340.6	119.9	770.7	42.3	140.6	147.2	.6	1,095
1986[1]	74	191.1	62.3	253.4	170	62.9	316.3	19.9	54.2	340.6	100.7	706.0	21.9	141.8	131.4	.5	1,002
1987[5]							320.0	13.0	42.0		85.0	710.0	10.0	130.0	150.0	1.0	950

[1] Preliminary. [2] Recoverable zinc content. [3] Excludes redistilled slab & zinc produced by remelting. [4] Aluminum & magnesium-base scrap. [5] Estimate. [6] Domestic ores (recoverable content). *Source: Bureau of Mines* T.770

ZINC

World Smelter Production of Zinc In Thousands of Metric Tons

Year	Australia	Belgium	Canada	France	W. Germany	Italy	Japan	Mexico	Norway	Peru	Poland	Spain	USSR	United Kingdom[3]	United States	World Total
1979	310.4	252.6	580.4	248.6	355.5	202.3	789.4	161.7	77.8	68.2	209.0	182.7	880.0	76.7	525.7	6,260
1980	306.0	247.6	591.6	252.8	370.6	206.4	735.2	143.9	79.4	63.8	217.0	151.7	895.0	86.7	369.9	6,049
1981	300.4	234.7	618.6	257.1	366.6	180.9	670.2	126.5	80.3	126.2	167.1	179.5	905.0	81.6	396.8	6,081
1982	295.9	240.9	511.9	243.8	335.0	158.6	662.4	127.0	72.0	160.2	165.4	181.8	940.0	79.3	302.5	5,894
1983	303.0	275.8	617.0	249.5	356.5	155.9	701.3	175.7	90.7	154.0	170.3	189.9	965.0	87.7	305.1	6,249
1984	306.4	285.3	683.2	258.5	356.4	169.7	754.5	167.0	94.2	148.4	176.0	207.4	995.0	85.6	331.2	6,526
1985[1]	293.2	289.6	692.4	285.6	367.8	215.6	739.6	175.4	92.7	169.7	180.0	213.3	1,000	74.3	333.8	6,844
1986[2]	310.2	290.0	572.0	289.5	371.3	229.4	708.0	173.7	90.4	155.4	179.0	213.6	1,005	85.9	316.3	6,784

[1] Preliminary. [2] Estimated. [3] Some secondary metal included. *Source: Bureau of Mines* T.771

U.S. Mine Production of Recoverable Zinc In Thousands of Metric Tons

Year	Arizona	Colorado	Idaho	Illinois	Missouri	Montana	Pennsylvania	New Mexico	New York	New Jersey	Tennessee	Utah	Virginia	Washington	Wisconsin	Total U.S.
1979	N.A.	9.9	29.7	N.A.	61.7	.1	21.4	N.A.	12.1	31.1	85.1	N.A.	11.4	—	N.A.	267.3
1980	N.A.	13.8	27.7	N.A.	62.9	.1	22.6	N.A.	33.6	28.9	111.8	N.A.	12.0	—	N.A.	317.1
1981	.1	N.A.	N.A.	N.A.	52.9	—	24.7	N.A.	36.9	16.2	117.7	1.6	9.7	—	—	312.4
1982	—	N.A.	N.A.	N.A.	63.7	N.A.	24.8	—	52.3	16.8	121.3	—	—	—	—	303.2
1983	—	N.A.	N.A.	N.A.	57.0	—	16.8	—	56.7	16.5	110.0	—	—	—	—	275.3
1984	—	N.A.	N.A.	N.A.	45.5	—	—	—	N.A.	N.A.	116.5	N.A.	—	—	—	252.8
1985	—	N.A.	N.A.	N.A.	49.3	—	—	—	N.A.	N.A.	104.5	—	—	—	—	226.5
1986[1]	—	N.A.	.4	N.A.	37.9	—	—	—	N.A.	N.A.	102.1	—	—	—	—	203.0

[1] Preliminary. [2] Estimated. *Source: Bureau of Mines* T.772

Consumption of Slab Zinc in the United States, by Industries and Grades In Thousands of Metric Tons

		By Industries							By Grades					
Year	Total	Galvanizers	Brass Products	Zinc-Base Alloy[2]	Rolled Zinc	Zinc Oxide	Light-Metal Alloys	Other	Special High Grade	High Grade	Contin.[5] Galvan. Grade	Contrd.[4] Lead Grade	Prime Western	Remelt
1979	1,000.6	452.8	141.4	314.1	22.0	35.5	12.9	21.9	443.1	108.6	22.5	86.8	336.8	2.8
1980	811.1	379.2	98.8	254.2	21.1	27.0	11.1	19.6	354.3	76.2	18.5	70.3	290.3	1.6
1981	840.9	411.0	113.0	243.4	23.2	25.7	8.2	16.5	361.5	97.6	18.2	80.3	275.3	1.2
1982	709.5	342.0	81.1	197.8	37.2	32.4	8.3	10.7	324.8	84.6	24.5	68.7	204.9	2.0
1983	805.9	373.2	107.9	212.9	56.3	36.2	12.5	6.9	406.7	91.0	62.6	60.8	179.1	5.6
1984	848.9	375.6	125.6	232.6	56.9	37.0	14.9	6.2	449.1	100.3	53.9	55.4	184.5	5.6
1985	770.7	362.4	77.9	218.4	48.0	44.4	15.2	4.3	420.6	87.4	37.1	39.3	174.8	5.5
1986[3]	706.0	366.0	73.7	175.1	28.6	40.1	13.0	9.6	353.4	89.1	35.0	37.3	182.0	9.0
1987[1]	710	340	75	140	35	25								

[1] Estimated. [2] Die casters. [3] Preliminary. [4] Controlled. [5] Continuous. *Source: Bureau of Mines* T.773

Zinc Foreign Trade of the United States In Metric Tons

	Imported for Consumption							Zinc Ore & Manufactures Exported						
								Blocks, Pigs, Anodes, etc.		Wrought & Alloys				
Year	Ores[1]	Blocks, Pigs, Slabs	Zinc Fume	Waste & Scrap	Dross, & Skimmings	Dust, Powder & Flakes	Total Value Thous. $	Unwrought	Unwrought Alloys	Sheets, Plates & Strips	Angles Bars, Rods, etc.	Waste & Scrap	Dust (Blue Powder)	Zinc Ore & Concentrates
1979	87,499	524,130	28	3,259	4,454	3,586	434,677	279	366	1,824	1,451	28,149	966	20,095
1980	182,370	410,163	25	3,470	4,062	3,928	401,134	302	485	2,103	804	29,542	4,512	54,457
1981	245,710	612,007	184	5,782	7,629	7,993	676,299	323	378	1,500	1,160	30,046	5,003	54,232
1982	66,809	456,233	11	2,653	7,104	5,864	409,896	341	863	995	1,028	29,424	2,066	77,289
1983	63,156	617,679	631	3,900	6,508	6,533	533,398	427	662	957	1,046	28,255	1,914	60,168
1984	86,172	639,228	314	6,259	5,027	7,572	683,211	760	588	975	840	39,146	2,933	30,579
1985	90,186	610,900	—	3,247	4,942	8,681	559,434	1,011	1,243	776	1,434	43,947	2,037	23,264
1986[2]	75,786	665,126	11	4,521	6,087	7,446	522,473	1,938	1,610	721	1,050	68,660	1,551	3,269
1987[3]	30,000	650,000						1,200				73,000		10,000

[1] Zinc content. [2] Preliminary. [3] Estimate. *Source: Bureau of Mines* T.774

U.S. Mine Production of Recoverable Zinc In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	28.7	26.8	28.6	27.2	25.9	27.4	24.9	25.5	24.4	28.6	24.3	24.8	317.1
1981	25.5	25.7	28.5	26.3	25.6	23.9	24.2	25.2	28.9	28.7	26.0	23.9	312.4
1982	24.3	24.7	26.3	23.4	25.6	27.0	21.3	27.4	26.1	27.8	25.9	23.3	303.2
1983	25.2	23.0	25.6	23.1	22.5	21.1	20.2	24.0	23.1	23.9	21.9	21.7	275.3
1984[1]	23.2	25.0	26.9	21.8	22.7	19.9	19.2	16.2	15.1	21.5	21.2	19.0	252.8
1985[1]	19.7	21.8	23.6	17.8	18.9	18.8	13.9	14.2	14.8	19.1	16.3	18.8	226.5
1986[1]	20.4	18.4	19.6	15.3	12.2	14.2	16.6	15.4	16.6	19.4	15.2	17.7	203.0
1987[1]	17.2	18.2	17.9	17.7	17.5	17.8	17.5	18.2					

[1] Preliminary. *Source: Bureau of Mines* T.774A

U.S. Consumption of Slab Zinc by Fabricators In Thousands of Metric Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	80.4	80.3	82.8	74.1	61.0	55.5	46.8	58.2	66.7	74.6	72.3	70.5	811.1
1981	74.5	73.6	77.3	74.3	73.6	77.2	64.4	72.4	70.2	66.2	59.8	52.0	840.9
1982	55.1	55.3	60.0	57.8	58.8	65.8	56.3	60.7	61.4	60.8	53.7	50.8	709.5
1983	61.8	59.9	68.8	66.7	64.1	65.7	55.8	64.5	67.2	65.5	70.1	63.7	805.9
1984[1]	69.4	70.2	76.8	72.1	73.1	71.1	62.8	67.6	65.1	69.2	64.9	62.4	848.9
1985[1]	65.3	64.4	62.8	61.0	66.0	59.0	52.6	55.9	56.8	58.9	55.8	52.1	711.8
1986[1]	55.4	56.3	59.9	56.2	57.8	59.1	51.4	54.8	58.6	58.1	52.5	52.7	706.0
1987[1]	55.7	55.1	63.9	59.1	59.0	60.6	55.6	61.4					

[1] Preliminary. *Source: Bureau of Mines* T.774B

Stocks of Slab Zinc[1] (at Smelter) in the United States, at Beginning of Month In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1980	47.5	34.0	31.9	31.4	36.9	42.8	42.1	35.4	30.1	23.4	20.6	20.6
1981	18.4	18.8	20.9	17.6	17.2	17.9	20.9	22.9	21.5	27.0	34.9	38.1
1982	40.4	45.4	46.1	44.0	39.0	30.8	22.6	16.5	17.6	22.0	23.7	27.1
1983	24.2	24.4	21.4	19.8	21.2	22.4	22.2	15.0	10.6	16.0	17.8	18.4
1984	18.4	15.9	17.4	16.5	22.0	27.9	37.4	43.4	44.4	49.0	40.5	36.1
1985	48.2	48.1	46.0	37.8	35.6	35.3	35.3	35.6	37.8	39.9	35.8	37.3
1986	39.2	33.6	28.8	28.0	21.6	17.0	12.5	10.0	10.3	8.2	9.6	11.8
1987	17.1	18.3	21.4	20.6	17.2	12.0	10.7	8.2	7.8	7.8	7.6	6.1

[1] Figures include zinc produced from foreign ores as well as domestic ores. *Source: American Bureau of Metal Statistics, Inc.* T.777

Smelter Production of Slab Zinc[1] in the United States (Includes GSA Metal) In Thousands of Short Tons

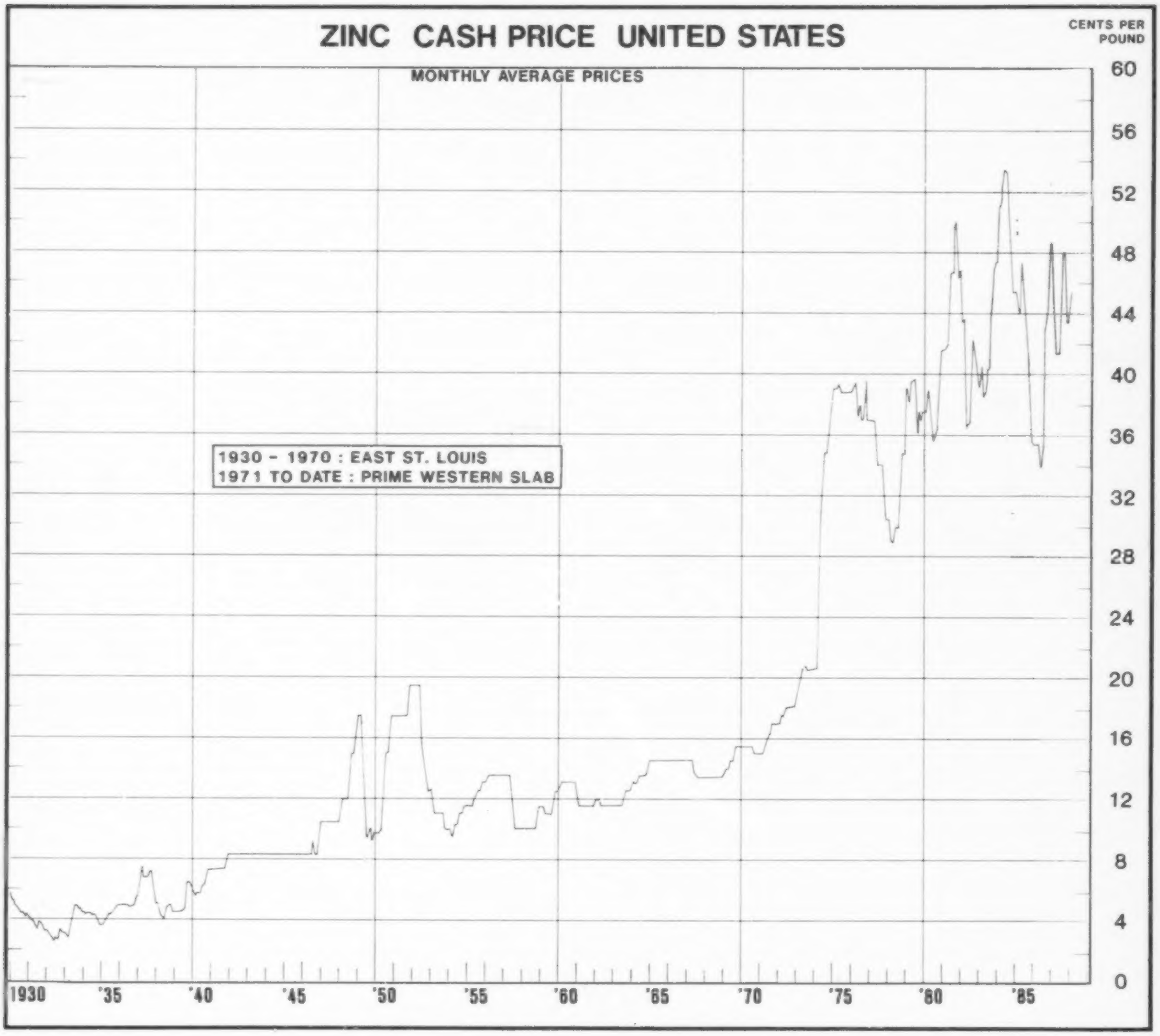
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	30.5	30.6	34.8	32.1	31.9	28.5	20.8	26.7	28.6	31.0	29.9	33.2	358.6
1981	33.4	31.5	34.5	34.1	32.2	30.8	33.0	33.5	29.4	29.8	29.3	25.3	376.8
1982	26.7	23.8	23.6	21.3	23.7	23.7	20.6	22.4	26.5	27.3	20.6	19.9	280.3
1983	20.0	22.8	25.0	24.7	25.9	24.0	17.6	25.6	25.1	26.5	27.3	24.1	288.5
1984	25.5	24.3	23.9	28.4	27.3	30.1	27.0	26.0	25.4	25.4	25.2	31.2	319.7
1985	30.9	28.5	33.2	28.2	26.9	21.3	23.6	26.9	27.4	30.7	27.2	27.1	331.8
1986	28.2	21.3	21.3	23.2	26.5	25.0	25.7	24.4	25.0	26.6	24.1	26.2	297.5
1987	25.8	26.7	28.3	25.3	18.2	18.3	15.0	16.4	17.0	17.9	16.1		

[1] Smelter & refinery production from domestic & foreign ores. *Source: American Bureau of Metal Statistics, Inc.* T.775

Domestic Shipments of Slab Zinc[1] in the United States In Thousands of Short Tons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1980	44.5	44.2	36.8	32.7	26.4	22.6	21.5	33.4	34.0	37.6	32.7	33.3	399.6
1981	35.6	31.1	32.3	37.4	32.6	30.2	30.0	31.5	30.8	24.3	21.4	22.0	359.2
1982	24.4	18.8	22.9	23.4	28.7	31.9	28.7	28.6	25.4	23.0	18.9	16.5	291.3
1983	22.9	22.6	28.0	26.3	24.4	22.8	17.9	32.8	29.5	21.2	25.5	23.5	297.3
1984	28.0	22.8	24.8	22.9	21.4	20.5	20.9	25.1	20.8	33.8	29.7	19.1	289.9
1985	30.9	30.6	41.4	30.5	27.1	21.3	23.4	24.7	25.3	34.8	25.6	25.2	340.7
1986	33.9	26.2	22.1	29.6	31.1	29.5	28.2	24.1	27.1	25.1	21.9	20.9	319.7
1987	24.6	23.6	29.1	28.7	16.6	19.7	17.4	16.8	17.8	17.3	17.6		

[1] Does not include export shipments & gov't. account shipments. *Source: American Bureau of Metal Statistics, Inc.* T.776



Average Price of Zinc, Prime Western Slab (Delivered U.S. Basis) In Cents per Pound

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Average
1975	39.25	39.07	38.75	38.75	38.75	38.75	38.75	38.75	38.75	39.66	38.75	38.75	38.89
1976	37.26	37.00	37.00	37.00	37.00	37.00	37.00	38.75	39.50	37.00	37.00	37.00	37.38
1977	37.00	37.00	37.00	37.00	35.64	34.00	34.00	34.00	34.00	31.74	30.66	30.50	35.21
1978	30.50	30.26	29.00	29.00	29.00	29.95	30.00	31.92	32.75	33.66	34.75	34.75	31.30
1979	35.00	36.90	38.09	39.50	39.50	39.55	39.63	36.82	36.03	37.50	36.88	37.50	37.74
1980	37.50	38.70	38.92	38.50	37.50	36.55	35.50	35.98	37.46	38.48	39.69	41.63	38.03
1981	41.63	41.63	42.13	43.73	46.55	46.63	46.67	49.74	49.88	46.41	46.75	43.65	45.45
1982	43.31	43.56	43.56	36.39	36.64	36.69	38.86	40.00	42.21	42.50	40.80	38.99	39.95
1983	40.20	40.35	38.38	38.73	40.38	40.38	41.51	44.03	46.38	47.09	49.38	49.38	43.02
1984	51.10	51.38	52.84	53.38	53.26	52.61	50.13	48.97	47.16	45.38	45.38	45.38	49.75
1985	44.65	44.01	46.05	47.38	47.38	46.44	42.67	41.38	40.63	38.38	35.56	35.38	42.49
1986	35.38	35.38	35.38	33.86	35.00	39.85	42.02	44.38	45.53	48.09	48.72	44.92	40.79
1987	43.33	41.38	41.38	41.38	44.15	46.92	48.00	48.00	44.87	43.38	44.10	45.38	44.36

Source: American Metal Market T.778